

**2006 ACCESSORIES & EQUIPMENT****Frame and Underbody - Lucerne****SPECIFICATIONS****FASTENER TIGHTENING SPECIFICATIONS****Fastener Tightening Specifications**

<b>Application</b>	<b>Specification</b>	
	<b>Metric</b>	<b>English</b>
Engine Frame Insulator Fasteners	191 N.m	141 lb ft
Suspension Support Assembly Bolts - Rear Suspension	191 N.m	141 lb ft
Suspension Support Reinforcement Brace Bolts	86 N.m	63 lb ft

**REPAIR INSTRUCTIONS****UNDERBODY INSPECTION**

1. Raise and suitably support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Check for obvious deterioration on the floor pan.
3. Check for loose dirt and corrosion around the inside of the floor pan reinforcement member access holes. This is the first indication that corrosion may exist in hidden areas.

Perform all repairs before the final cleaning and protective treatment is performed.

4. Using a chisel, ensure that the drain provisions in the floor pan reinforcement members are open.

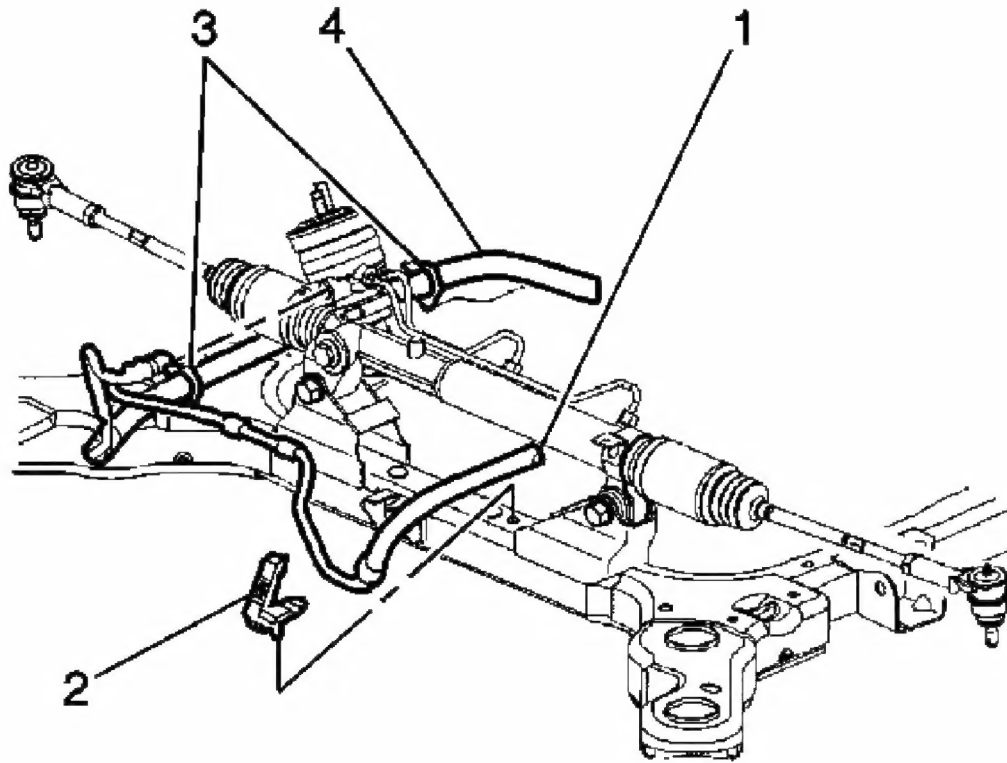
Open the drain holes in the body side panels using a punch and a drift.

**FRONT FRAME REPLACEMENT (3.8L)****Tools Required**

**J 39580** Universal Engine Support Table

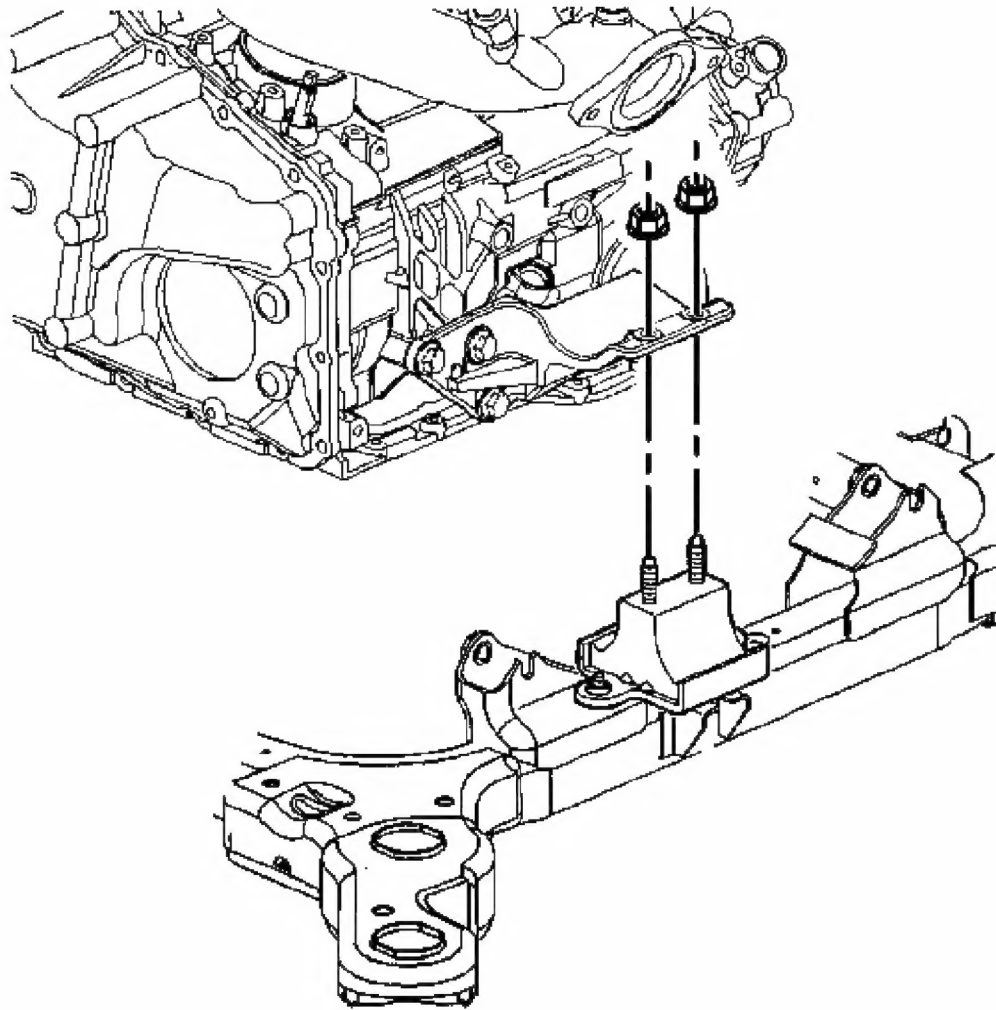
**Removal Procedure**

1. Install the engine support fixture. Refer to **Engine Support Fixture** .
2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .



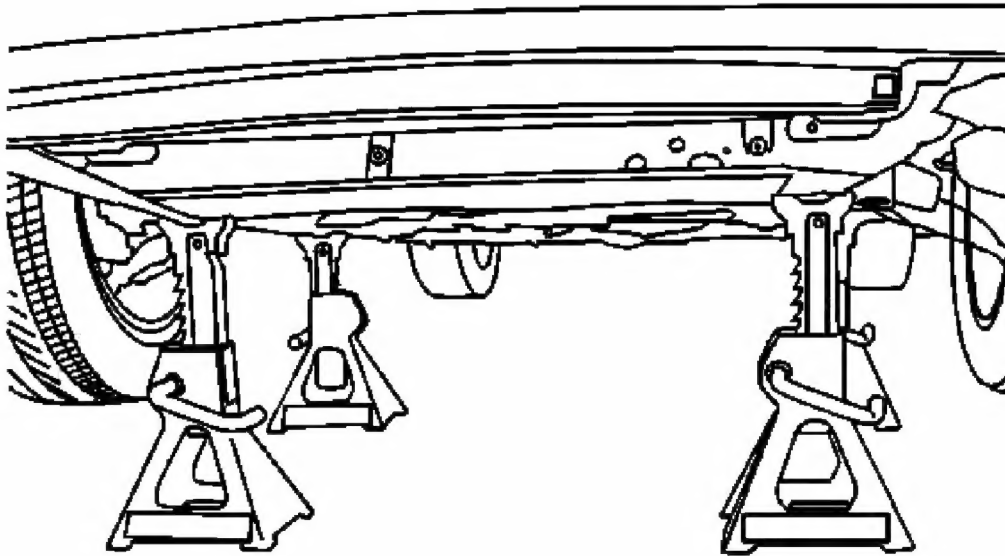
**Fig. 1: View Of Steering Rack & Related Components**  
**Courtesy of GENERAL MOTORS CORP.**

3. Remove the fasteners retaining the rack and pinion at the left side of the vehicle.
4. Remove the front tires and wheels. Refer to **Tire and Wheel Removal and Installation** .
5. Separate the ball joints from the steering knuckle. Refer to **Lower Control Arm Replacement** .
6. Remove the front air deflector. Refer to **Front Air Deflector Replacement** .
7. Remove the brackets (2) securing the power steering lines at the engine frame by lifting the push pin (1).
8. Remove the brackets retaining the transmissions cooler lines to the engine frame.
9. Remove the fastener retaining the rack and pinion at the right side of the vehicle.
10. Support the rack and pinion with a wire to the body.
11. Remove the nut securing the front engine mount to the frame. Refer to **Engine Front Mount Replacement** .



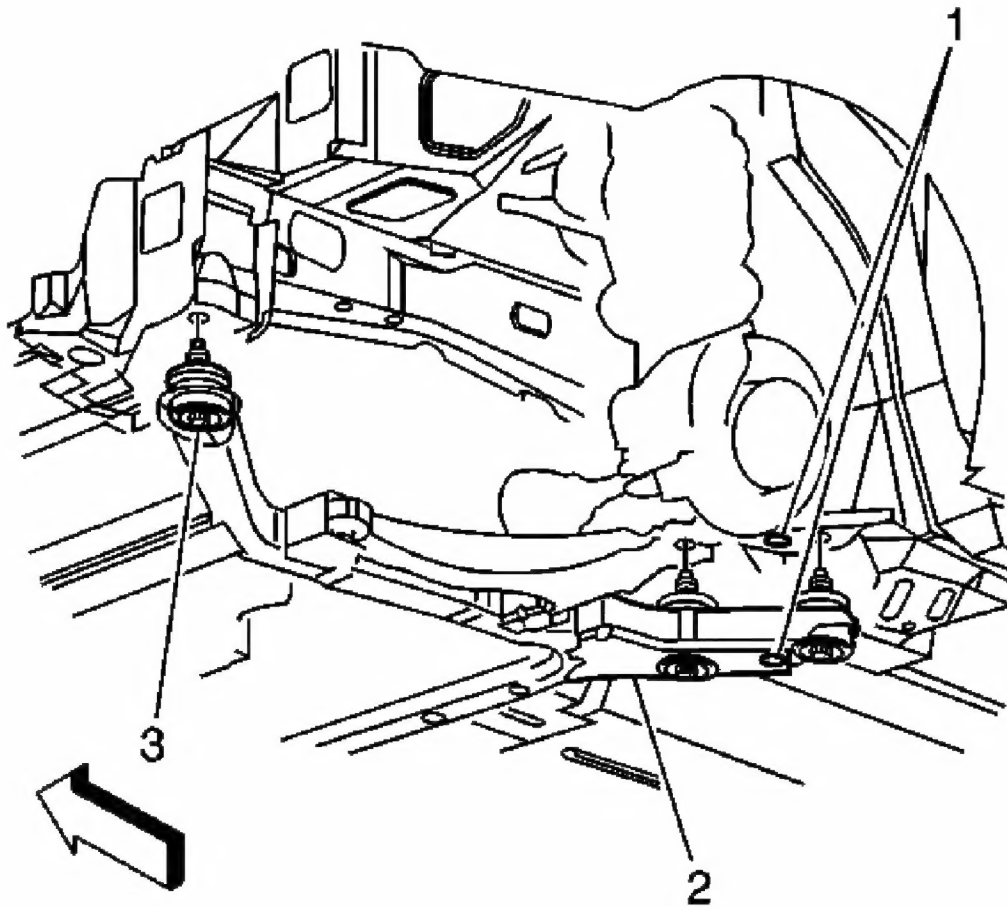
**Fig. 2: Removing/Installing Right Transaxle Mount To Engine Frame**  
**Courtesy of GENERAL MOTORS CORP.**

12. Remove the fasteners securing the left transmission mount to the frame. Refer to **Transmission Mount Replacement - Left Side** .
13. Remove the fastener securing the rear transmission mount to the frame. Refer to **Transmission Rear Mount Replacement** .



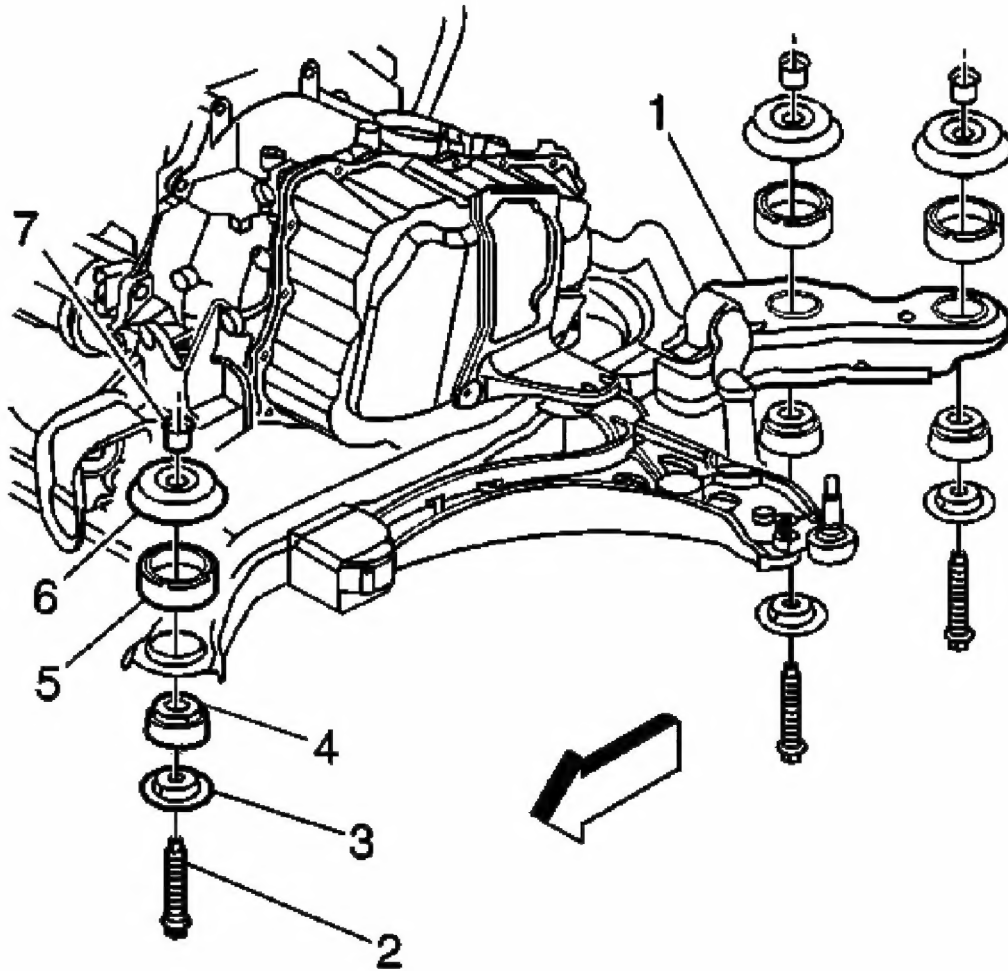
**Fig. 3: Locating Jackstands Under Engine Frame**  
**Courtesy of GENERAL MOTORS CORP.**

14. Support the engine frame near the frame insulators using **J 39580** or suitable jackstands.



**Fig. 4: Identifying Frame Insulators & Frame-To-Body Guide Pin Holes**  
**Courtesy of GENERAL MOTORS CORP.**

15. Remove the engine frame insulator fasteners (3) retaining the engine frame (2) to the vehicle.
16. Lower the engine frame (2) from the vehicle.

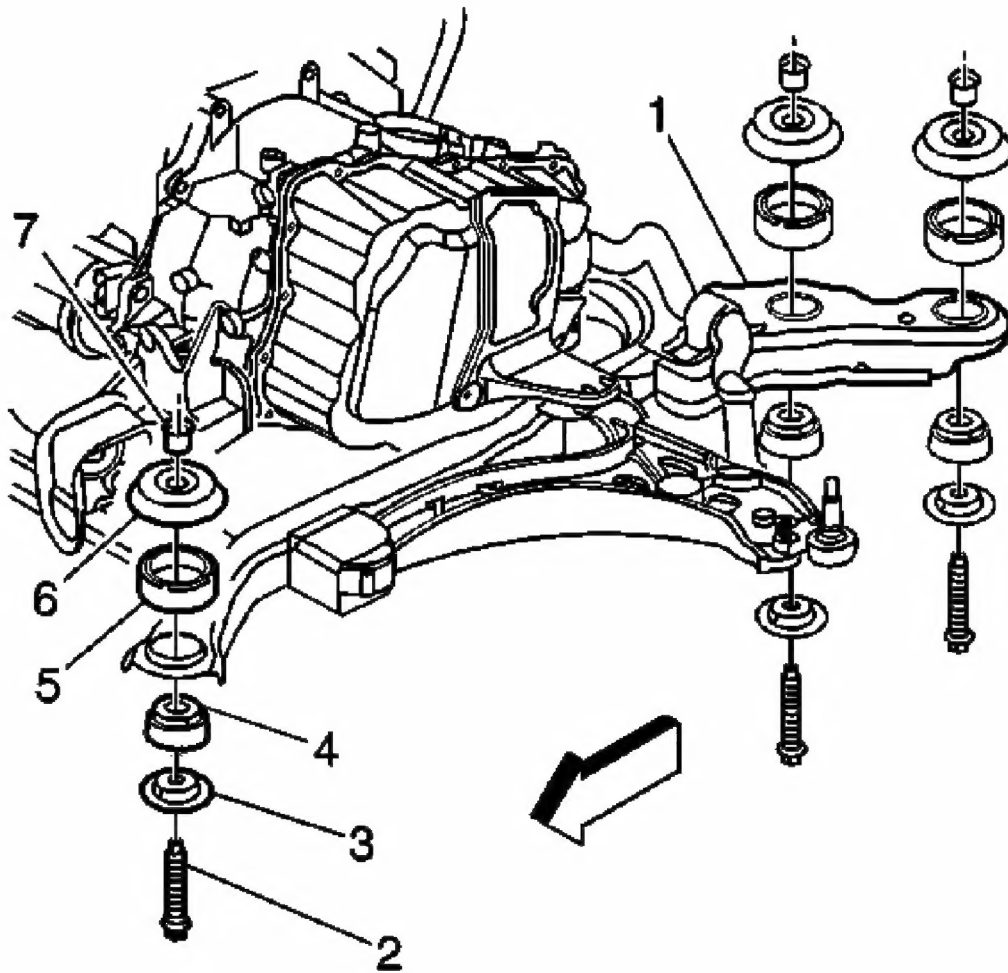


**Fig. 5: View of Engine Frame Insulators**  
**Courtesy of GENERAL MOTORS CORP.**

17. Separate the engine frame insulators (3-6) from the engine frame. Refer to **Frame Cushion or Insulator Replacement**.
18. If the engine frame is to be replaced, remove the lower control arms. Refer to **Lower Control Arm Replacement**.

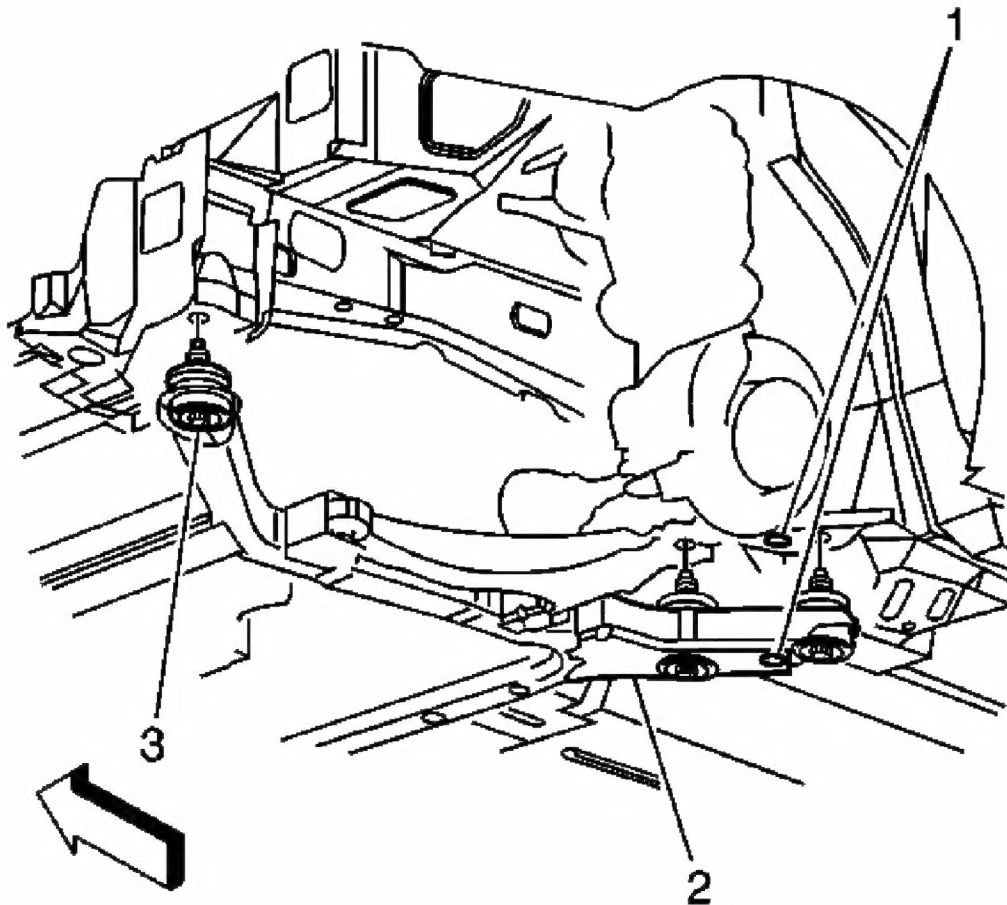
**Installation Procedure**

1. Install the lower control arms. Refer to **Lower Control Arm Replacement**.



**Fig. 6: View of Engine Frame Insulators**  
**Courtesy of GENERAL MOTORS CORP.**

2. Assemble the engine frame insulators (3-6) to the engine frame. Refer to **Frame Cushion or Insulator Replacement**.



**Fig. 7: Identifying Frame Insulators & Frame-To-Body Guide Pin Holes**  
**Courtesy of GENERAL MOTORS CORP.**

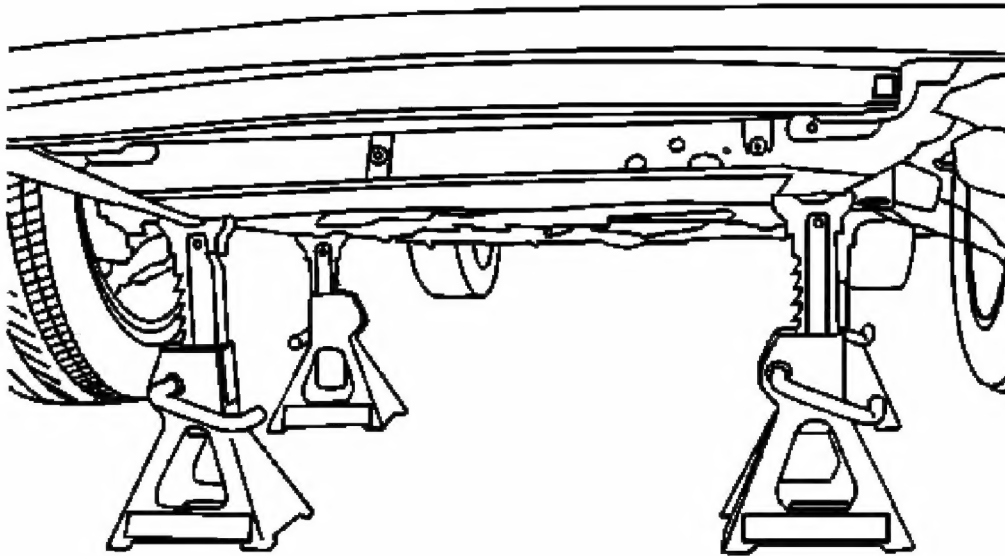
3. Using 16 mm (0.630 in) dowel pins in the alignment holes (1), align the engine frame (2) with the body.

**NOTE:** Refer to Fastener Notice .

4. Install the engine frame insulator fasteners (3) to retain the engine frame (2) to the vehicle.

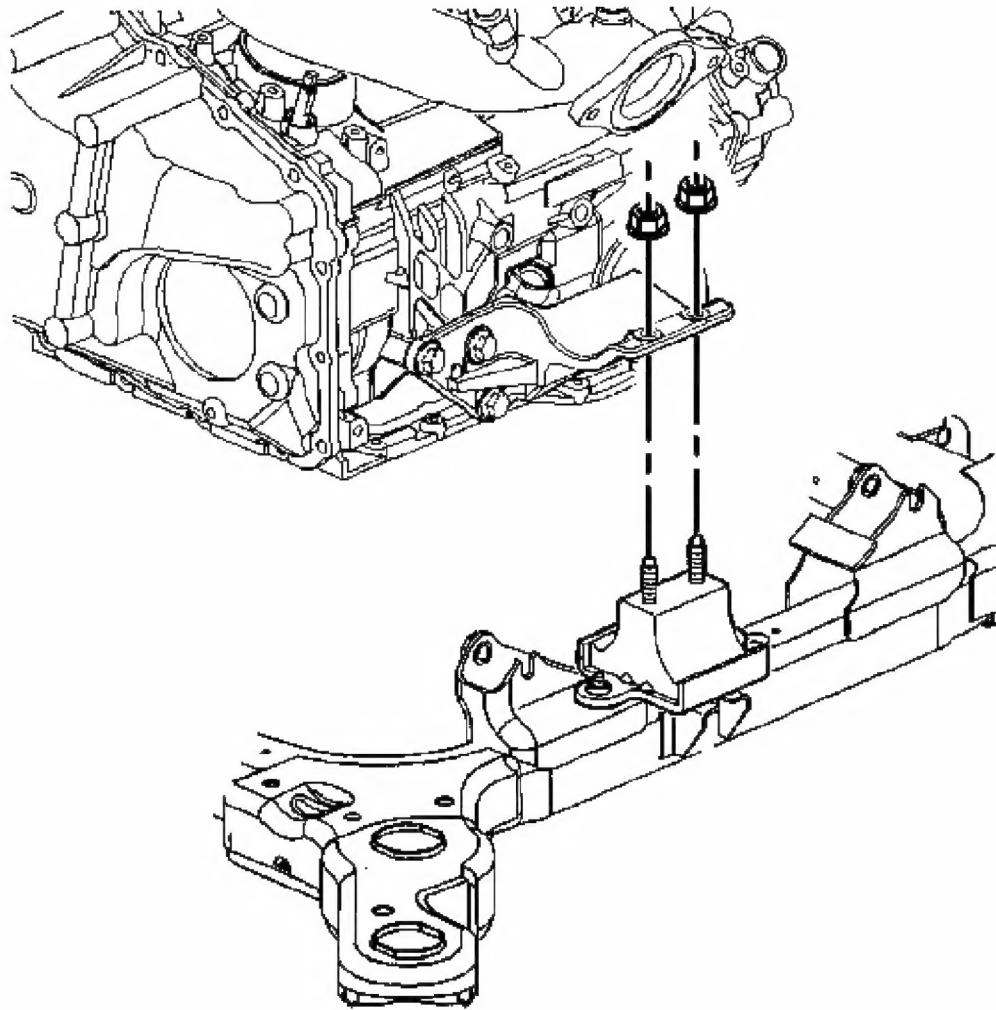
**Tighten:** Tighten the fasteners to 191 N.m (141 lb ft).





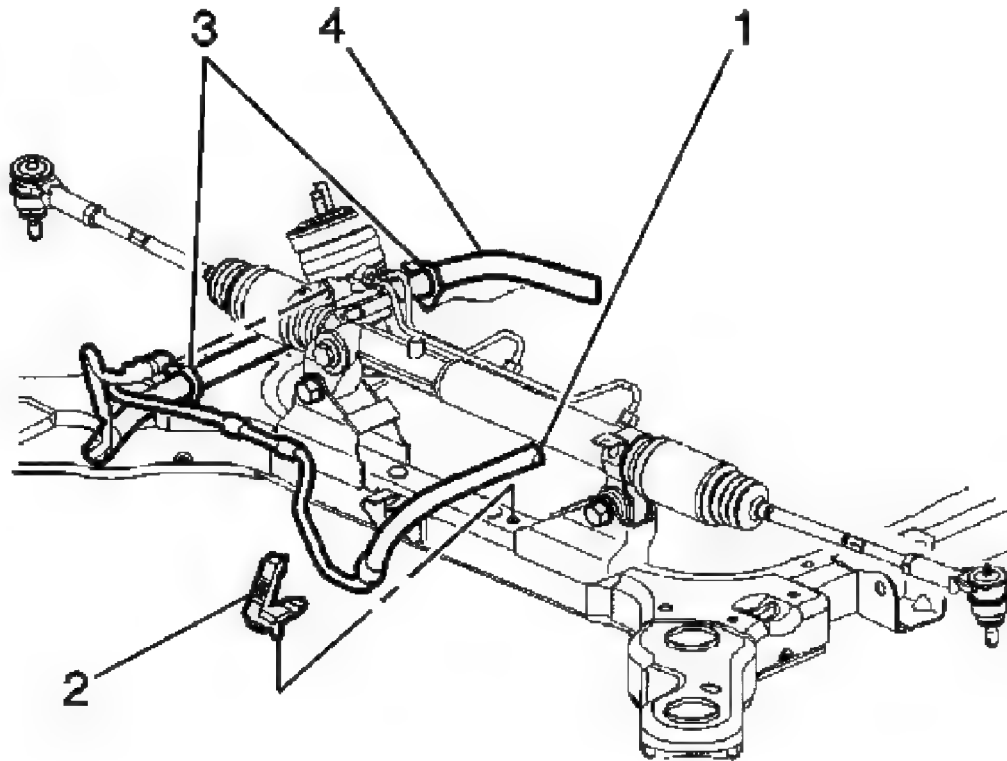
**Fig. 8: Locating Jackstands Under Engine Frame**  
Courtesy of GENERAL MOTORS CORP.

5. Remove the jack stands supporting the engine frame.
6. Install the fasteners securing the left transmission mount to the frame. Refer to **Transmission Mount Replacement - Left Side** .



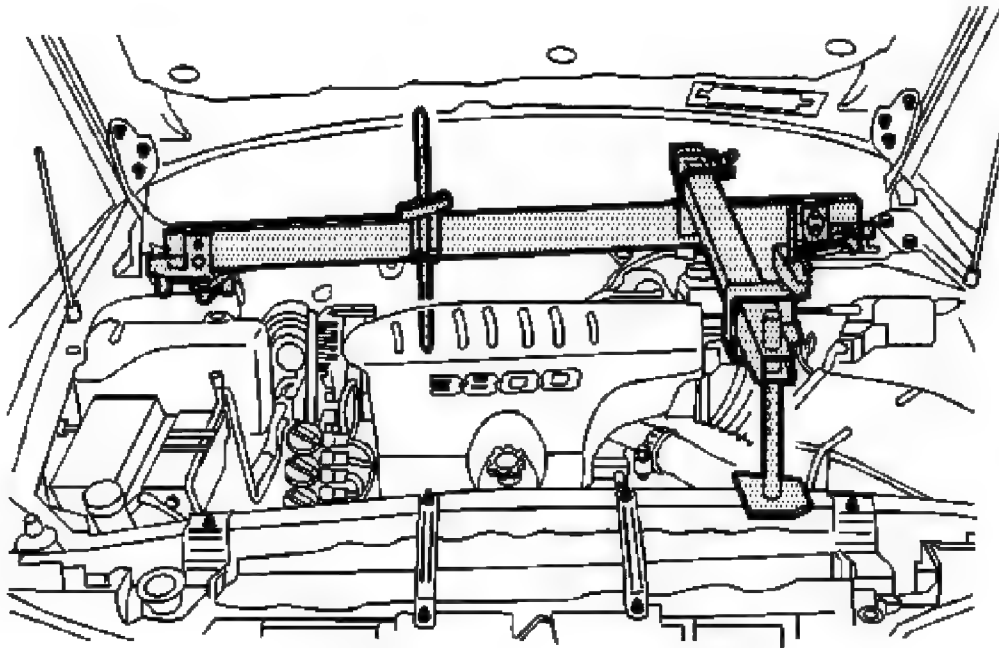
**Fig. 9: Removing/Installing Right Transaxle Mount To Engine Frame**  
**Courtesy of GENERAL MOTORS CORP.**

7. Install the fastener in order to secure the rear transmission mount to the bracket. Refer to **Transmission Rear Mount Replacement** .
8. Install the nut in order to retain the front engine mount to the frame. Refer to **Engine Front Mount Replacement** .



**Fig. 10: View Of Steering Rack & Related Components**  
**Courtesy of GENERAL MOTORS CORP.**

9. Install the fasteners in order to retain the rack and pinion to the engine frame. Refer to **Steering Gear Replacement** .
10. Install the brackets in order to retain the transmission cooler lines to the engine frame.
11. Install the brackets in order to retain the power steering lines (1, 2) at the engine frame.
12. Install the front air deflector. Refer to **Front Air Deflector Replacement** .
13. Install the ball joints to the steering knuckle. Refer to **Lower Control Arm Replacement** .
14. Install the front tires and wheels. Refer to **Tire and Wheel Removal and Installation** .



**Fig. 11: View of Engine Support Fixture**  
**Courtesy of GENERAL MOTORS CORP.**

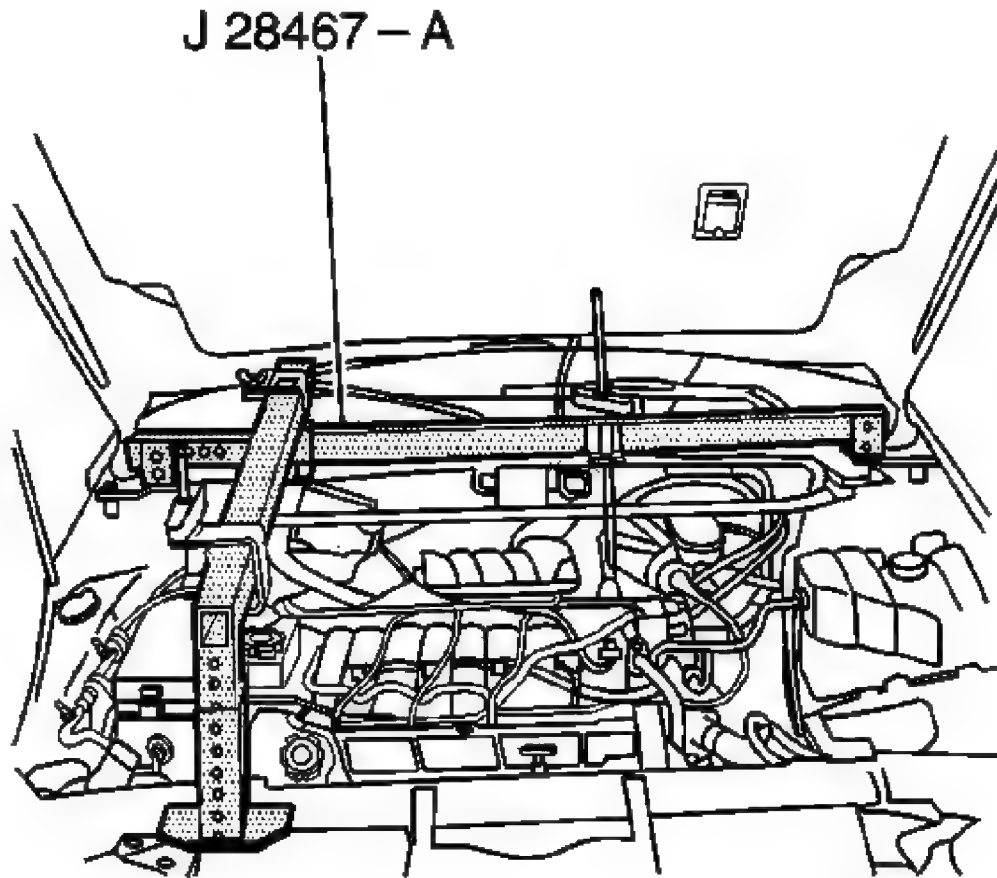
15. Remove the engine support fixture. Refer to **Engine Support Fixture** .
16. Lower the vehicle.
17. Check the front wheel alignment. Refer to **Wheel Alignment Specifications** .
18. Test drive the vehicle in order to ensure there are no performance issues.

#### **FRONT FRAME REPLACEMENT (4.6L)**

##### **Tools Required**

- **J 28467-A** Universal Engine Support Fixture
- **J 39580** Engine Support Stand

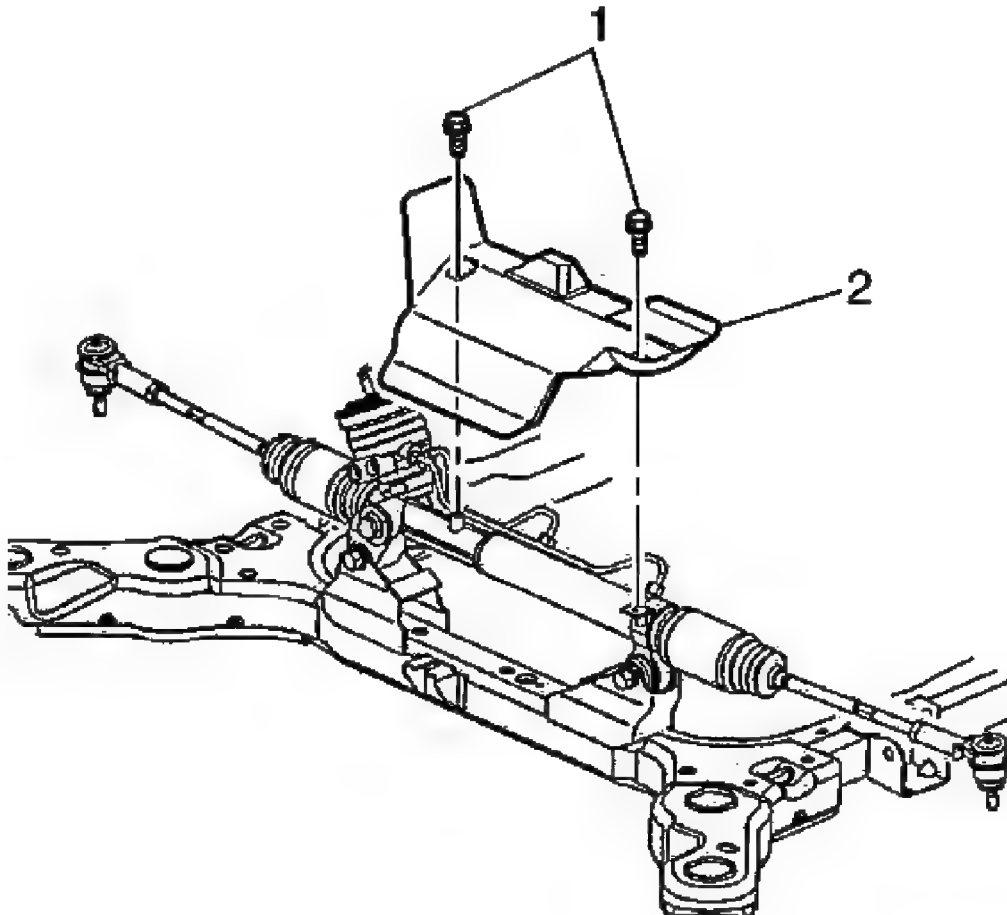
##### **Removal Procedure**



**Fig. 12: View Of J 28467-A Supporting Engine**  
Courtesy of GENERAL MOTORS CORP.

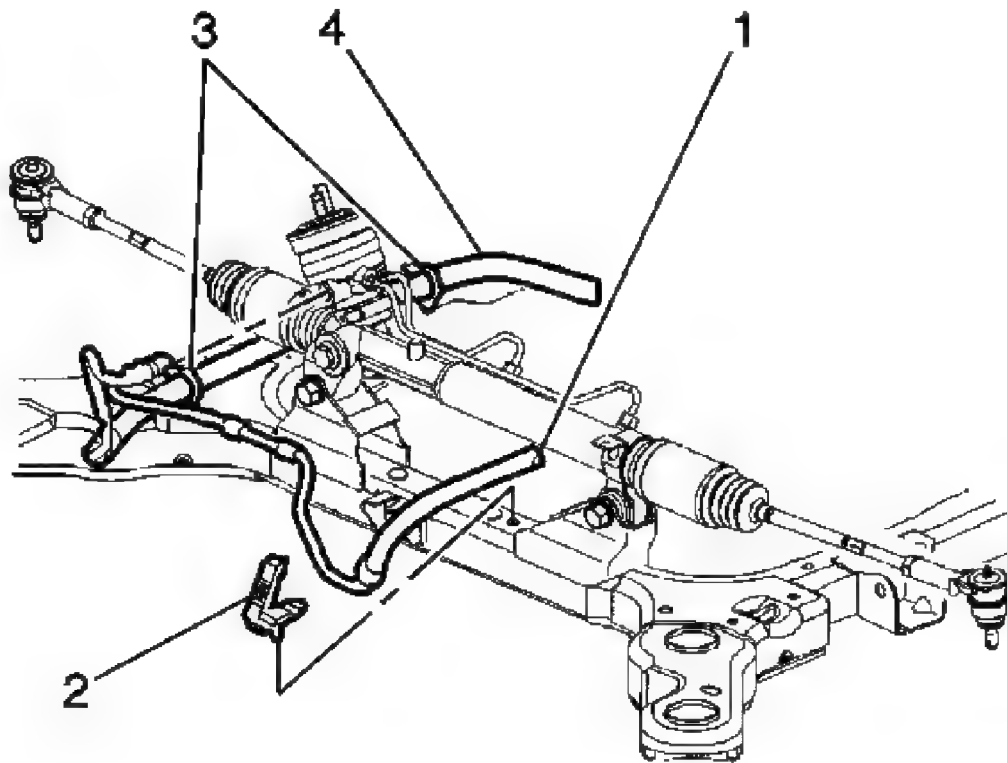
1. Install the **J 28467-A** in order to support the engine. Refer to **Engine Support Fixture** .
2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
3. Remove the front tires and wheels. Refer to **Tire and Wheel Removal and Installation** .
4. Remove the stabilizer shaft. Refer to **Stabilizer Shaft Replacement** .
5. Remove the bolts retaining the steering gear to the engine frame.
6. Remove the ball joints from the steering knuckle. Refer to **Lower Control Arm Ball Joint Replacement** in Front Suspension.
7. Remove the front air deflector. Refer to **Front Air Deflector Replacement** .
8. Remove the brake pressure modulator valve and bracket from the frame. Refer to **Brake Pressure Modulator Valve Replacement** .

9. Disconnect the ESC sensor links from the lower control arm ball studs.
10. Remove the secondary air injection pump assembly. Refer to **Secondary Air Injection Pump Replacement**.



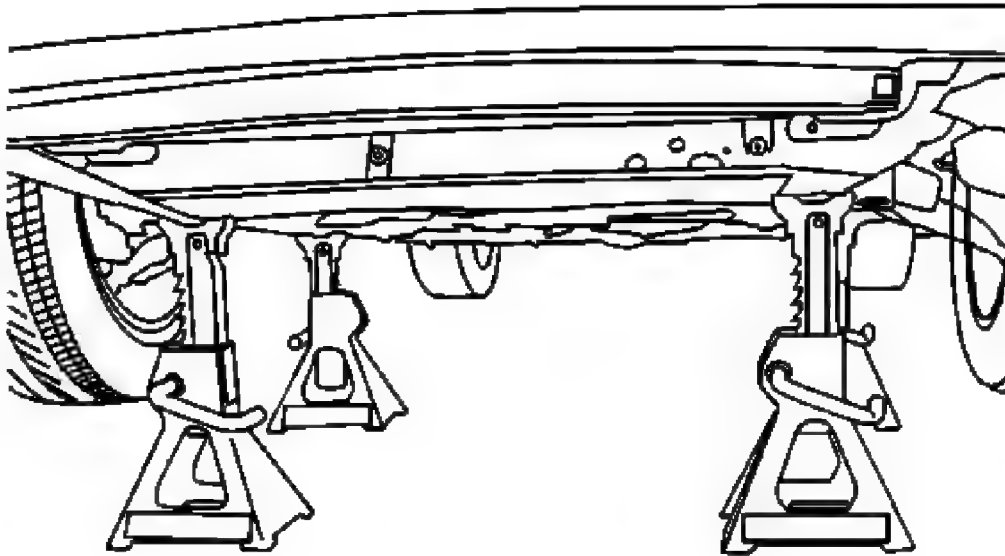
**Fig. 13: View Of Steering Gear Heat Shield & Fasteners**  
**Courtesy of GENERAL MOTORS CORP.**

11. Remove the steering gear heat shield fasteners (1) in order to remove the steering gear heat shield (2) and disconnect the electrical harness retainer that is mounted on the heat shield.
12. Disconnect the electrical harness from the heat shield.



**Fig. 14: View Of Steering Rack & Related Components**  
**Courtesy of GENERAL MOTORS CORP.**

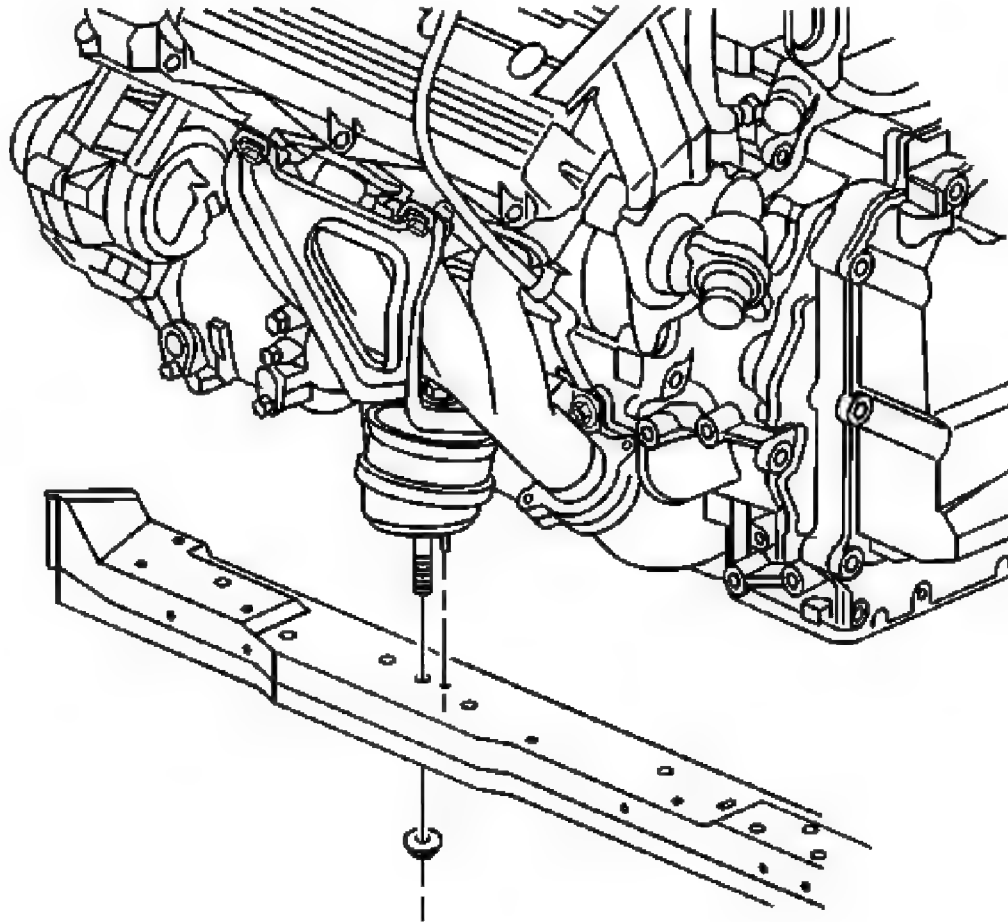
13. Remove the brackets (2) retaining the power steering line (1) to the frame.
14. Remove the retainer (3), retaining the power steering line (4) along the left side of the engine frame.
15. Using mechanics wire, retain the steering gear to the body.



**Fig. 15: Locating Jackstands Under Engine Frame**  
**Courtesy of GENERAL MOTORS CORP.**

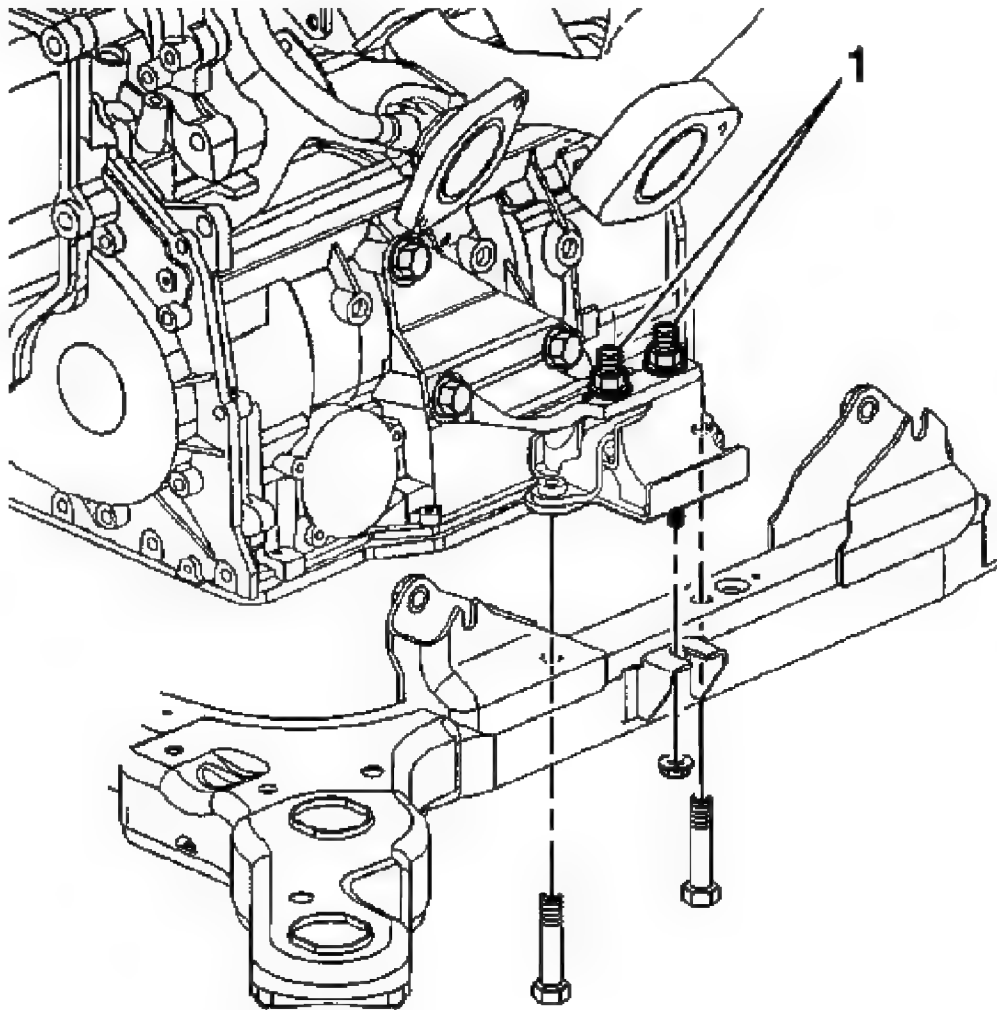
16. Lower vehicle until the engine frame rests on the **J 39580** or suitable jack stands.





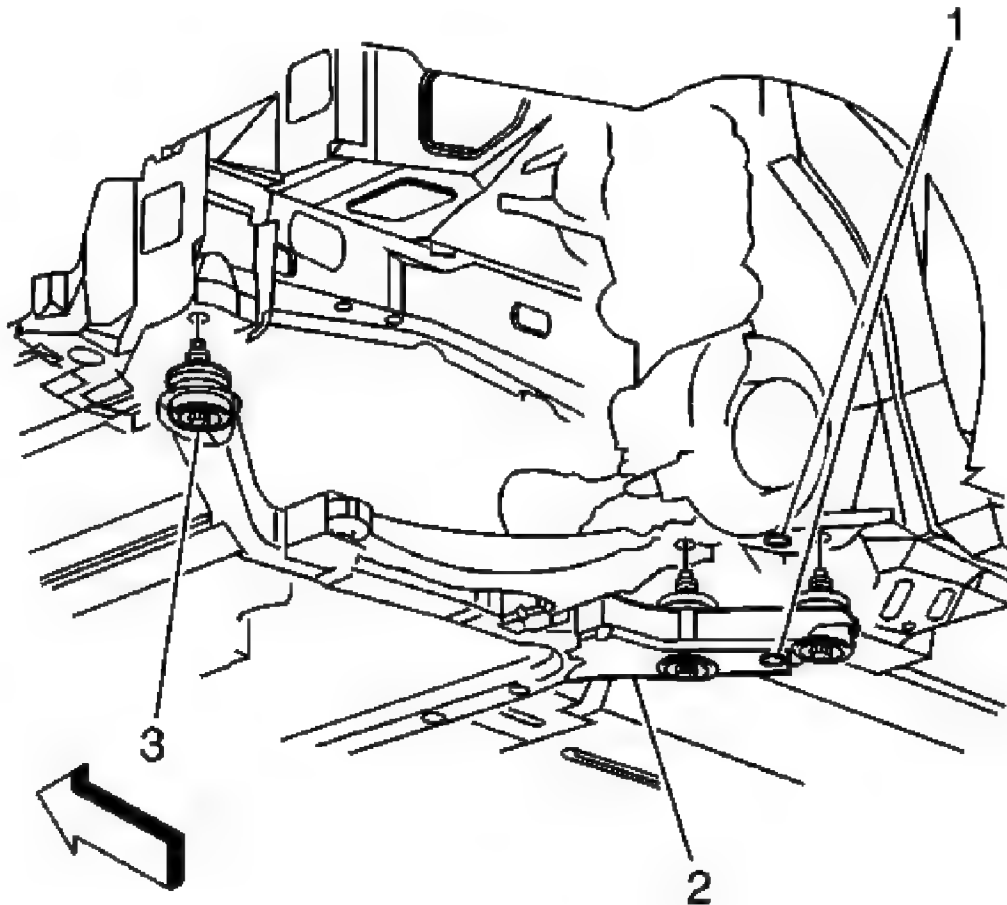
**Fig. 16: Removing/Installing Left Transaxle Mount To Engine Frame**  
**Courtesy of GENERAL MOTORS CORP.**

17. Remove the fastener retaining the front engine mount to the engine frame.



**Fig. 17: View Of Mount To Sub-Frame**  
**Courtesy of GENERAL MOTORS CORP.**

18. Remove the fasteners retaining the rear transaxle mount (1) to the engine frame.

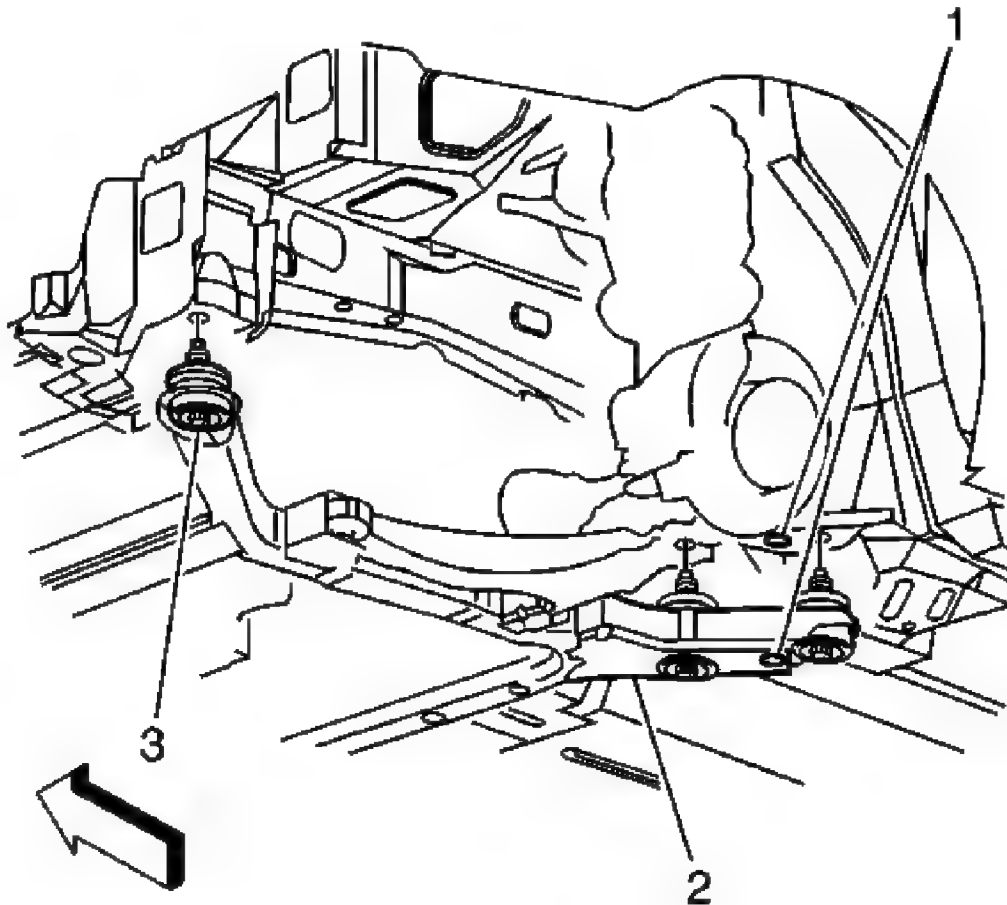


**Fig. 18: Identifying Frame Insulators & Frame-To-Body Guide Pin Holes**  
**Courtesy of GENERAL MOTORS CORP.**

19. Remove the engine frame insulator bolts (3) retaining the engine frame (2) to the vehicle.
20. Raise vehicle away from engine frame.
21. Remove the control arms. Refer to **Lower Control Arm Replacement** .

**Installation Procedure**

1. Install the control arms. Refer to **Lower Control Arm Replacement** .
2. Lower the vehicle onto the engine frame.



**Fig. 19: Identifying Frame Insulators & Frame-To-Body Guide Pin Holes**  
Courtesy of GENERAL MOTORS CORP.

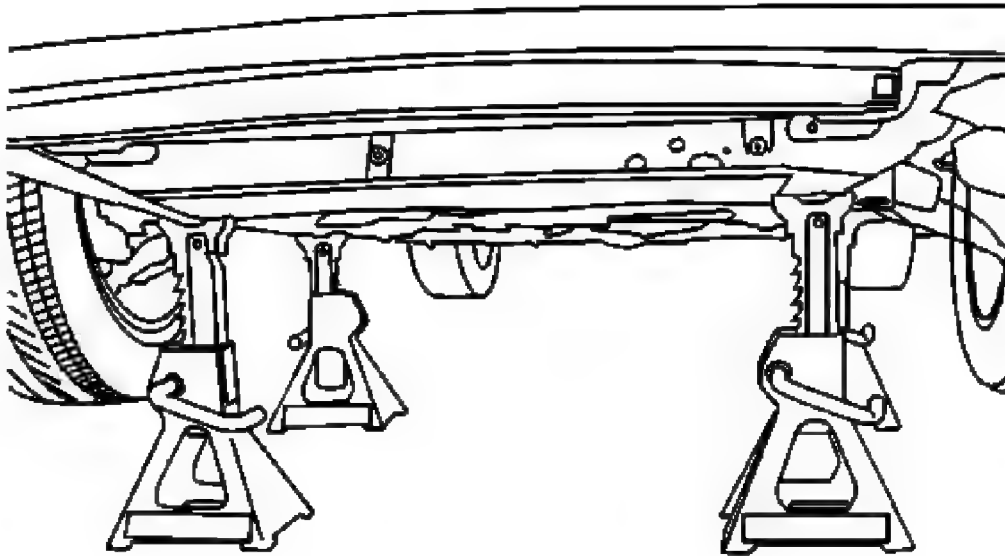
3. Using dowel pins in the alignment holes (1), align the engine frame (2) with the vehicle.

**NOTE:** Refer to Fastener Notice .

4. Install the engine frame insulator retainer bolts in order to retain the engine frame to the vehicle.

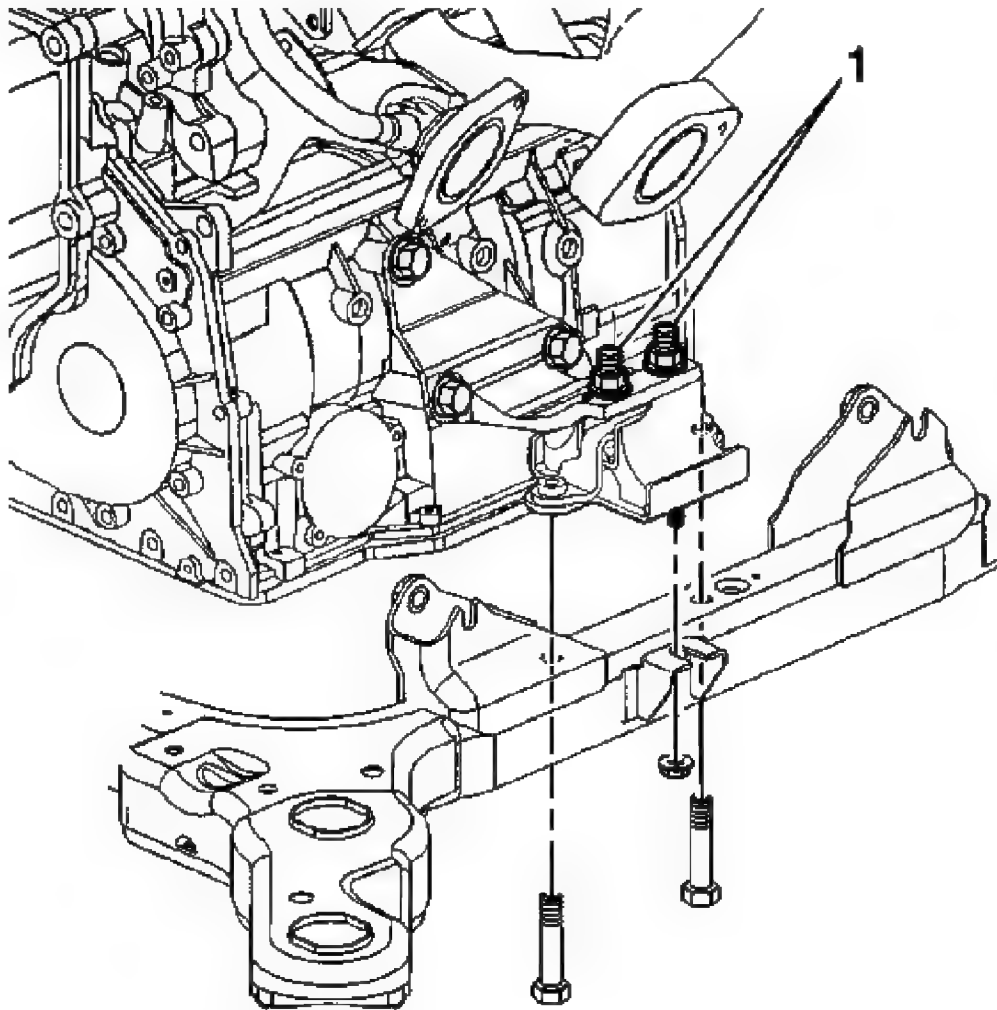
**Tighten:** Tighten the retainers to 181 N.m (133 lb ft).

5. Check the front wheel alignment. Refer to Wheel Alignment Specifications .



**Fig. 20: Locating Jackstands Under Engine Frame**  
**Courtesy of GENERAL MOTORS CORP.**

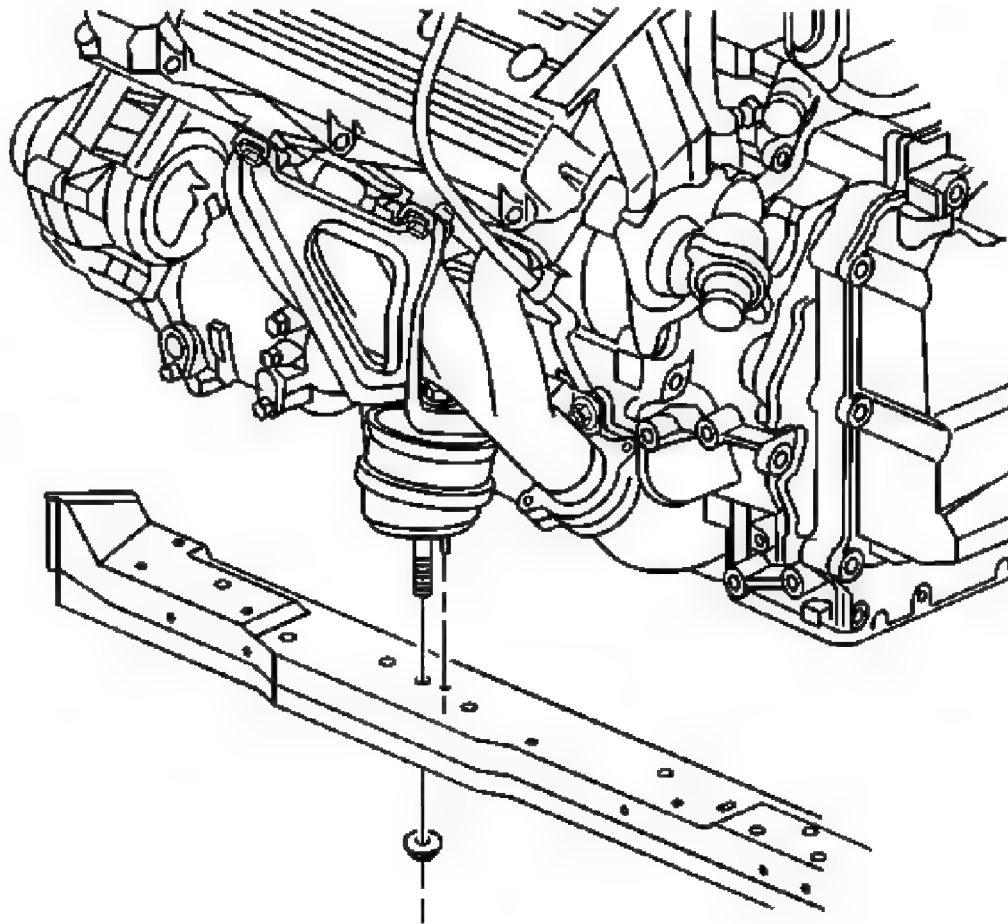
6. Raise the vehicle away from the jack stands supporting the engine frame.



**Fig. 21: View Of Mount To Sub-Frame**  
**Courtesy of GENERAL MOTORS CORP.**

7. Install the fasteners in order to retain the rear transaxle mount (1) to the bracket.

**Tighten:** Tighten the retainers to 50 N.m (37 lb ft).



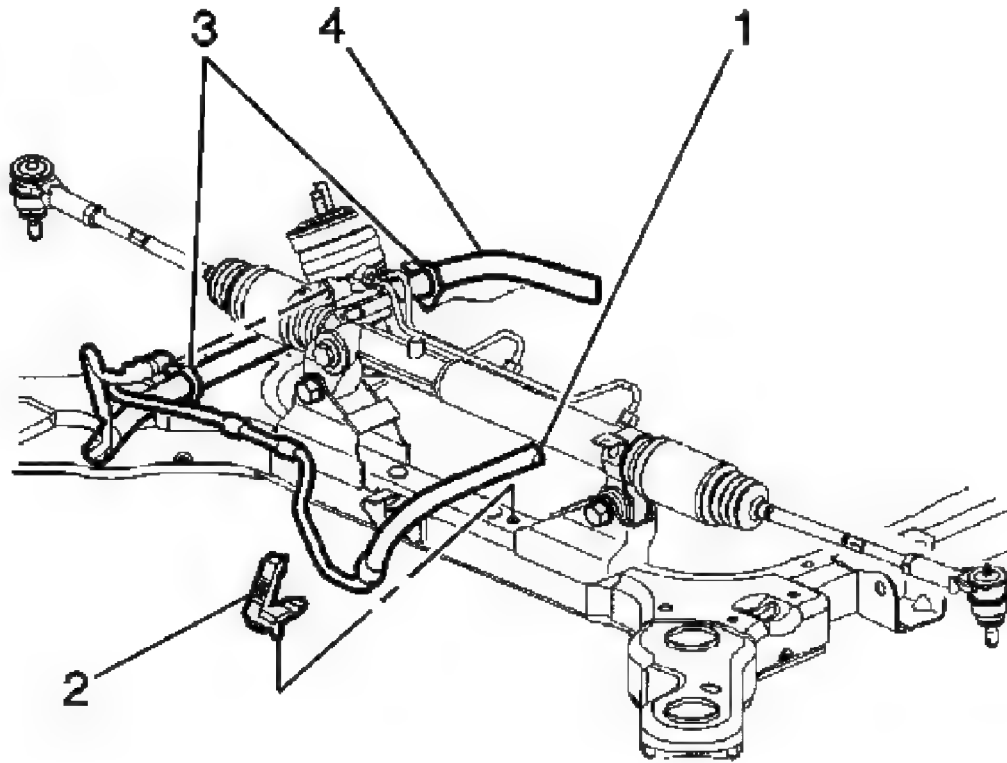
**Fig. 22: Removing/Installing Left Transaxle Mount To Engine Frame**  
**Courtesy of GENERAL MOTORS CORP.**

8. Install the fastener in order to retain the front engine mount to the engine frame.

**Tighten:** Tighten the fastener to 70 N.m (52 lb ft).

9. Install the fasteners in order to retain the steering gear to the engine frame.

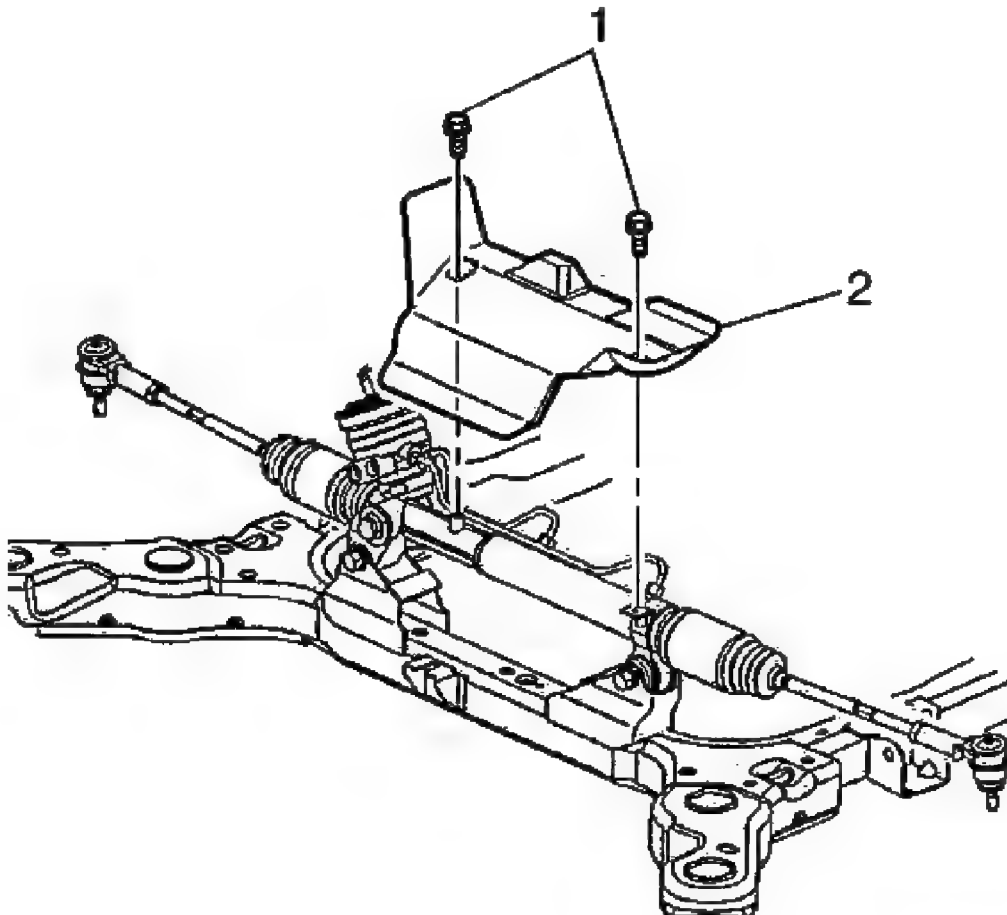
**Tighten:** Tighten the fastener to 95 N.m (70 lb ft).



**Fig. 23: View Of Steering Rack & Related Components**  
**Courtesy of GENERAL MOTORS CORP.**

10. Install the bracket (2) to retain the power steering line (1) to the engine frame.
11. Install the clips (3) retaining power steering line (4) along engine frame rail.
12. Connect the wiring harness to the heat shield.





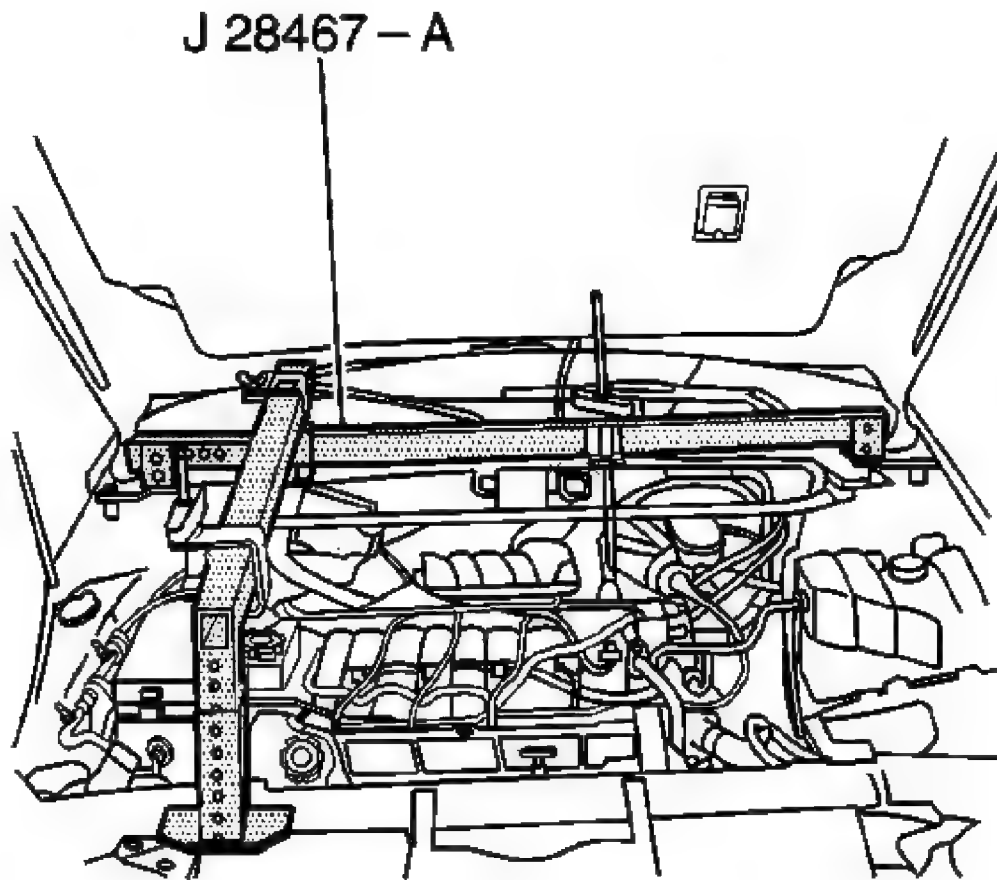
**Fig. 24: View Of Steering Gear Heat Shield & Fasteners**  
**Courtesy of GENERAL MOTORS CORP.**

13. Install the steering gear heat shield (2) to the vehicle.

**Tighten:** Tighten the retainers to 9 N.m (80 lb in).

14. Install the secondary air injection pump to the vehicle. Refer to **Secondary Air Injection Pump Replacement** .
15. Install the brake pressure modulator valve. Refer to **Brake Pressure Modulator Valve Replacement** .
16. Install the ESC sensor links to the lower control arm ball studs.
17. Install the front air deflector. Refer to **Front Air Deflector Replacement** .
18. Install the ball joints to the steering knuckle. Refer to **Lower Control Arm Ball Joint Replacement** .

19. Install the front tires and wheels. Refer to **Tire and Wheel Removal and Installation** .
20. Install the stabilizer shaft. Refer to **Stabilizer Shaft Replacement** .



**Fig. 25: View Of J 28467-A Supporting Engine**  
**Courtesy of GENERAL MOTORS CORP.**

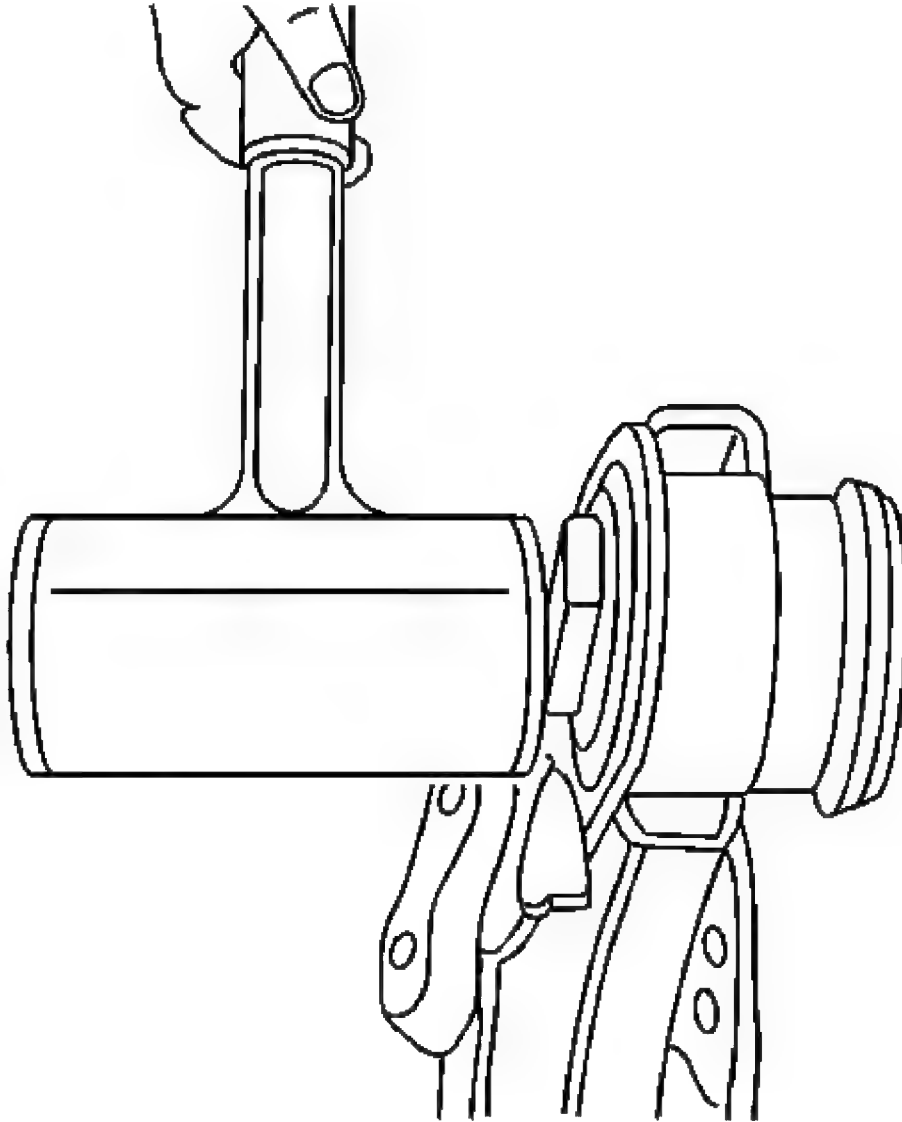
21. Lower the vehicle.
22. Remove the **J 28467-A** , supporting the engine.
23. Check the front wheel alignment. Refer to **Wheel Alignment Specifications** .

#### **FRAME CUSHION OR INSULATOR REPLACEMENT**

##### **Tools Required**

**J-45725** Frame Bushing Installer. See **Special Tools**.

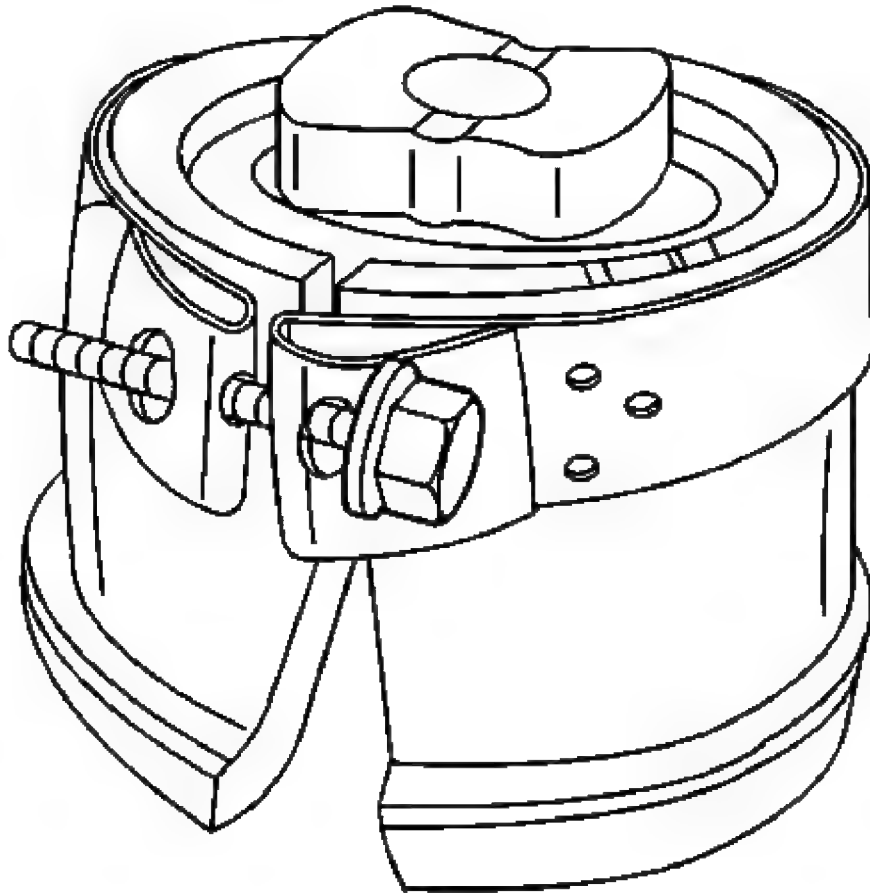
**Removal Procedure**



**Fig. 26: Removing Cradle Bushing With Rubber Mallet**  
**Courtesy of GENERAL MOTORS CORP.**

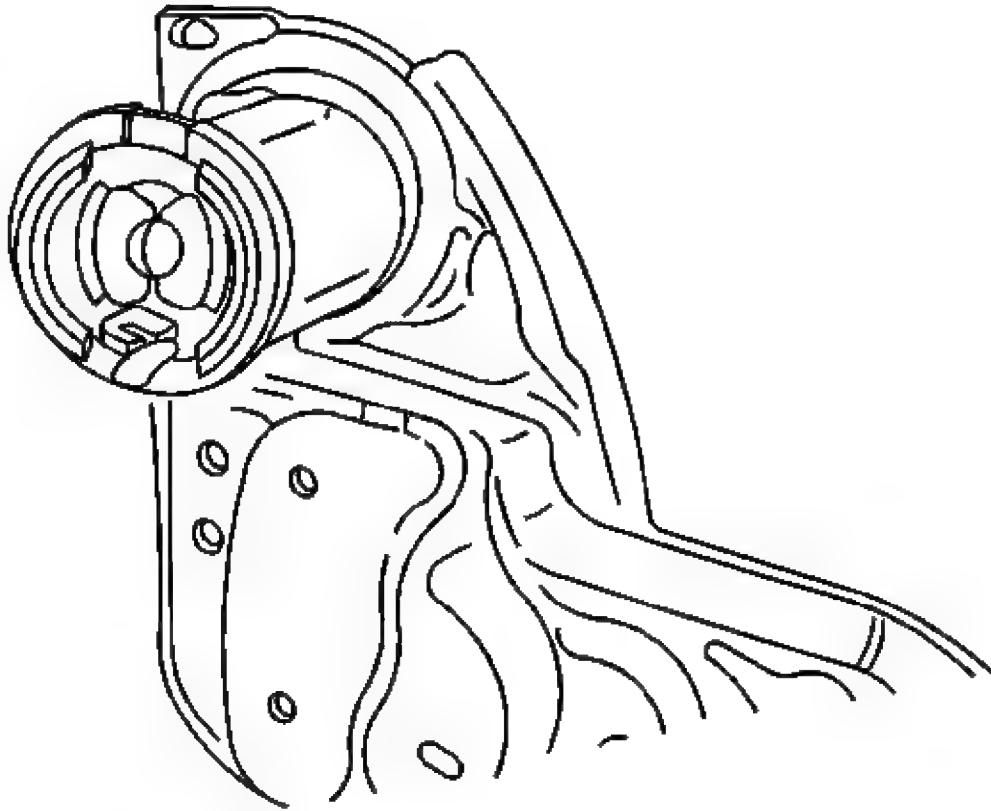
1. Remove the frame. Refer to **Front Frame Replacement (3.8L)** or **Front Frame Replacement (4.6L)**.
2. Remove cradle bushing with a rubber mallet.

**Installation Procedure**



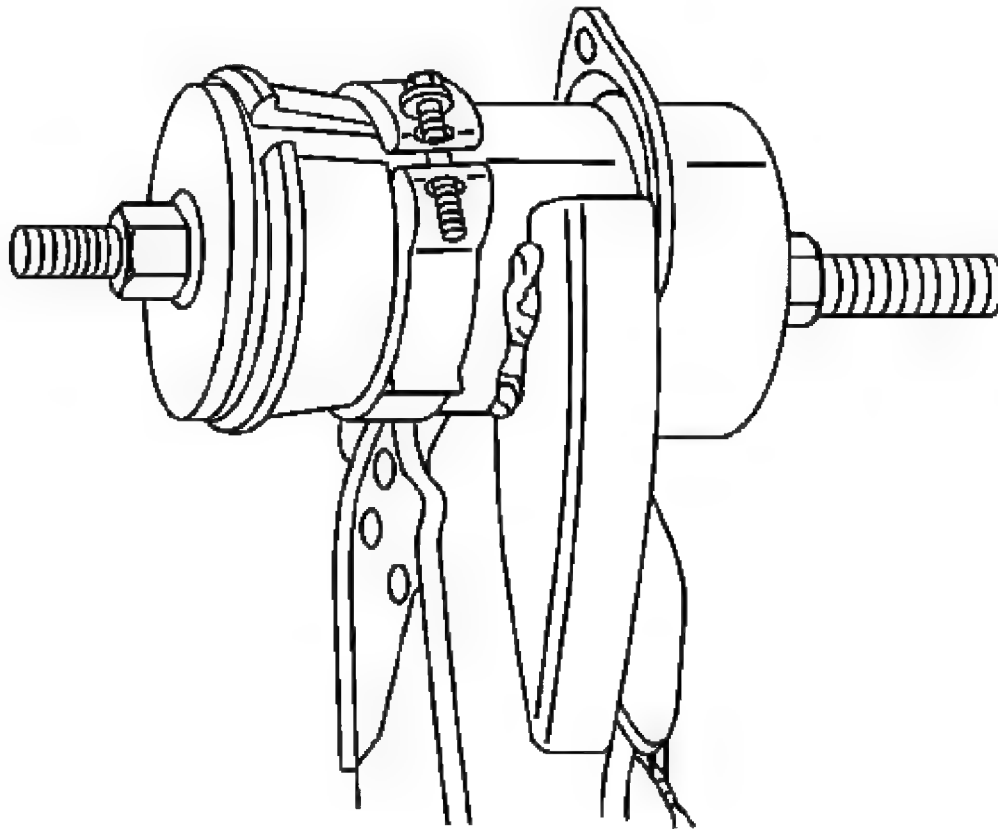
**Fig. 27: Installing Clamp J-45725 Onto The Bushing**  
**Courtesy of GENERAL MOTORS CORP.**

1. Install clamp **J-45725** onto the bushing leaving about an 1/8 inch from the bottom of the bushing. See **Special Tools**.



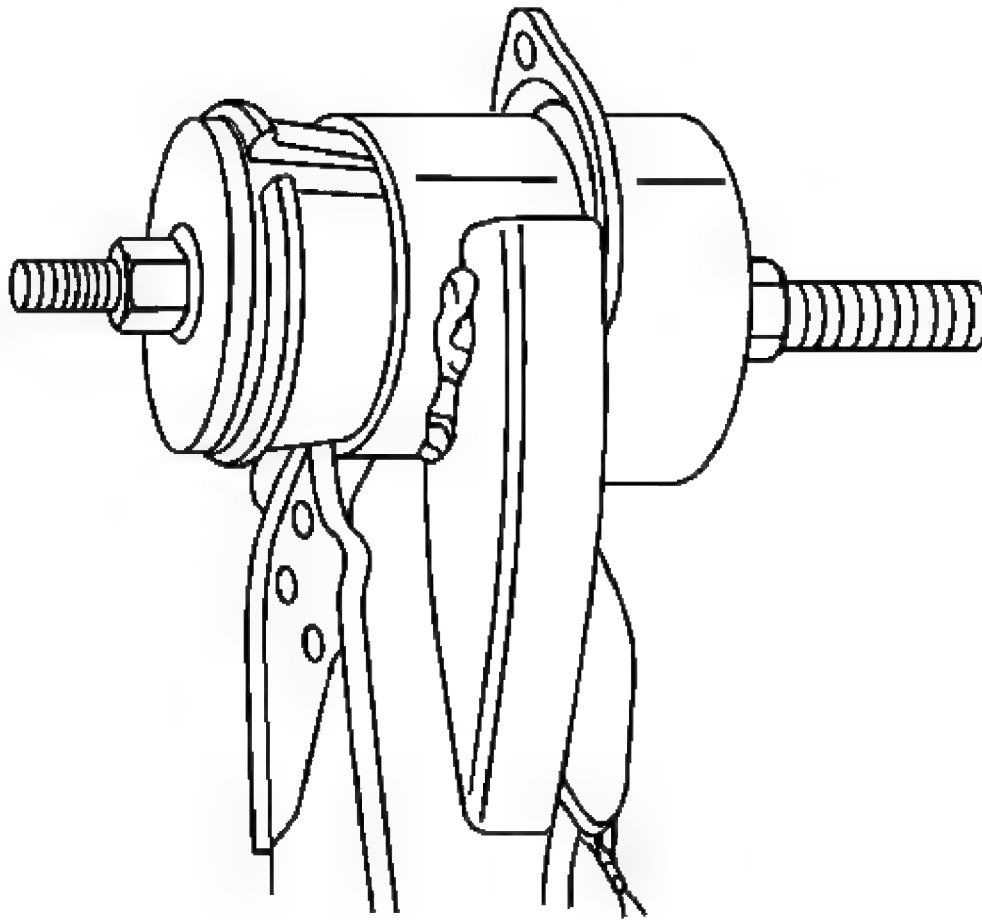
**Fig. 28: Aligning Split Of Bushing**  
**Courtesy of GENERAL MOTORS CORP.**

2. Align the split of the bushing to the front of the frame.



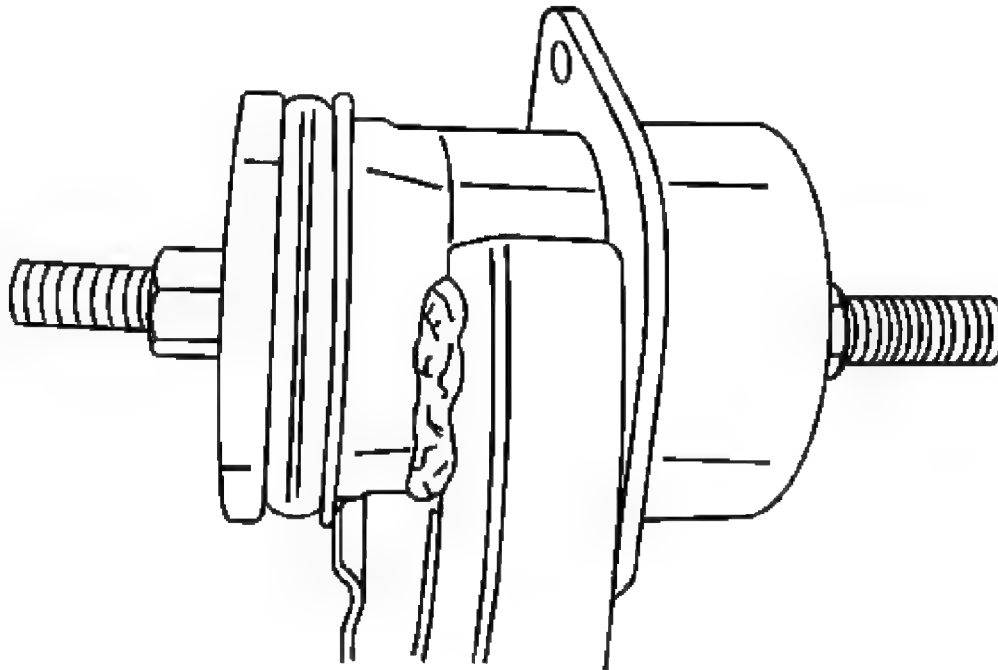
**Fig. 29: Using J-45725 To Install The Bushing**  
**Courtesy of GENERAL MOTORS CORP.**

3. Using **J-45725** install the bushing until the entire radius of the bushing is halfway recessed in the cradle. See **Special Tools**.



**Fig. 30: Removing Clamp**  
**Courtesy of GENERAL MOTORS CORP.**

4. Remove the **J-45725** clamp. See **Special Tools**.



**Fig. 31: Using J-45725 To Seat Lip Of The Bushing To The Bottom Of The Cradle Assembly**

**Courtesy of GENERAL MOTORS CORP.**

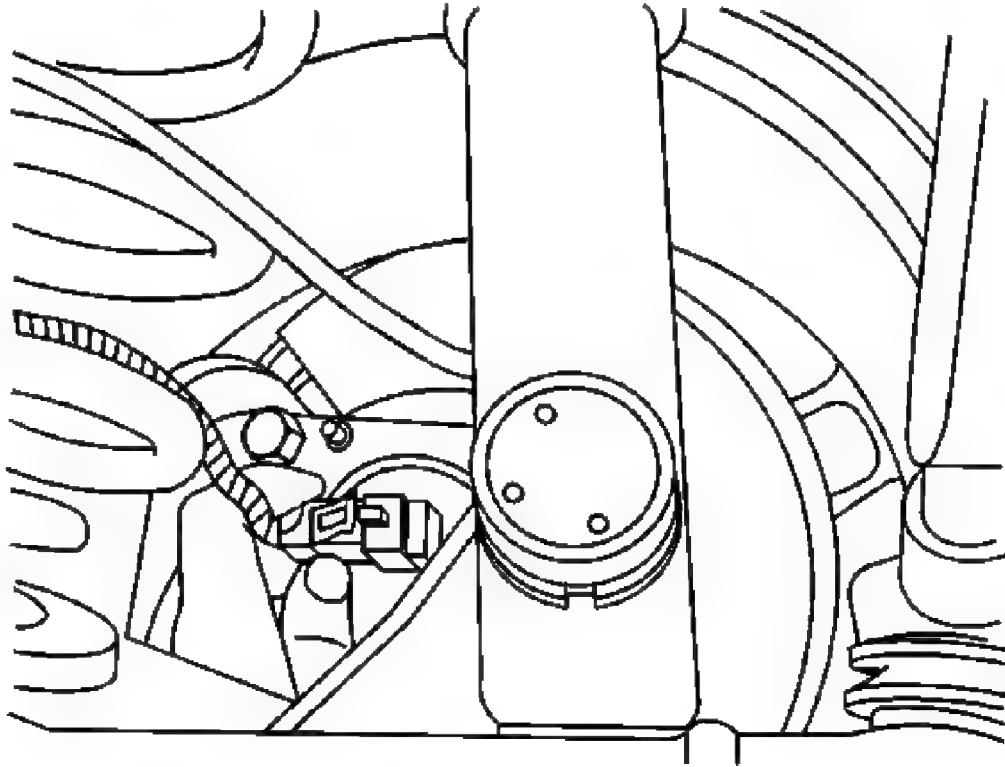
5. Using **J-45725** install the bushing until the lip of the bushing is fully seated to the bottom of the cradle assembly. See **Special Tools**.
6. Install the frame. Refer to **Front Frame Replacement (3.8L)** or **Front Frame Replacement (4.6L)**.

## **REAR SUPPORT REPLACEMENT**

### **Removal Procedure**

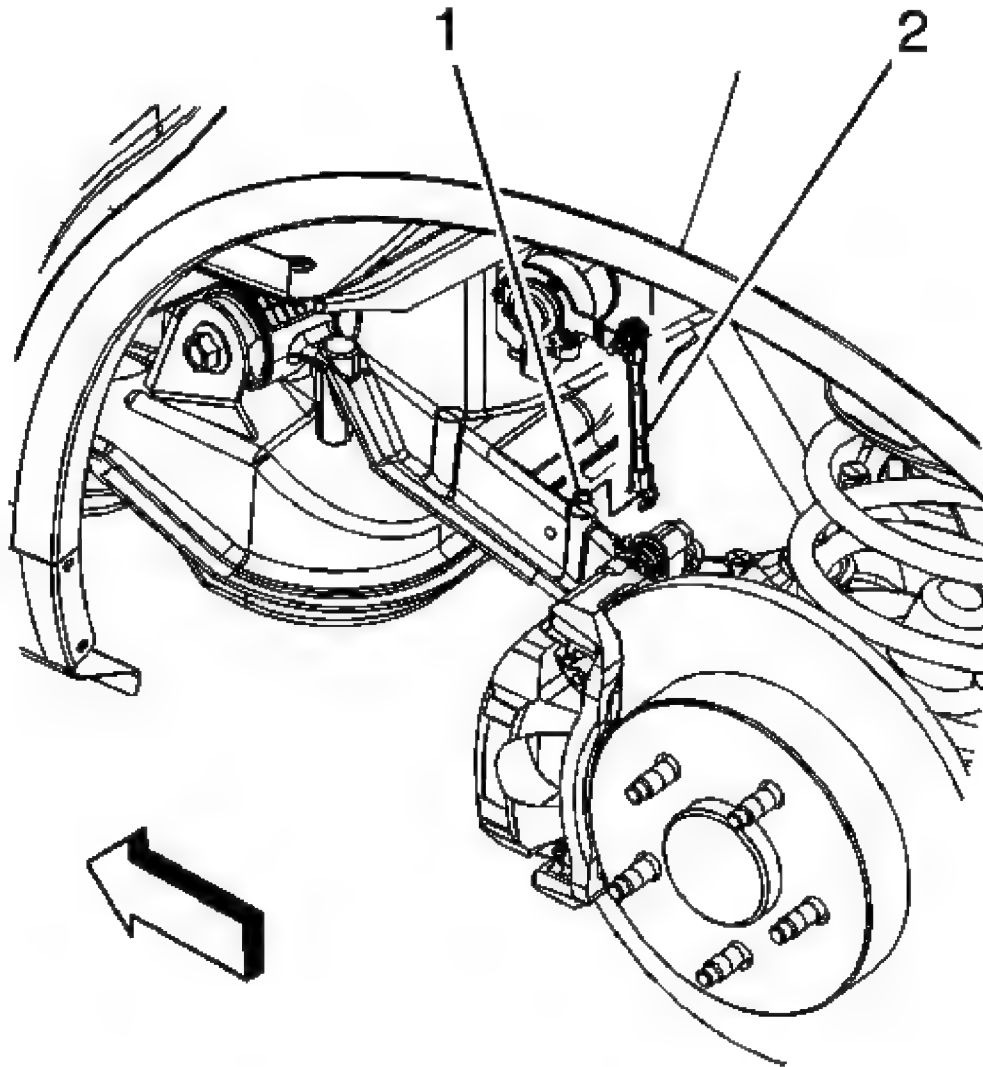
1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. Remove the rear tires and the wheels. Refer to **Tire and Wheel Removal and Installation** .
3. Remove the exhaust system. Refer to **Exhaust System Replacement (RPO L26)** or **Exhaust System Replacement (RPO LD8)** .
4. Remove the coil springs. Refer to **Coil Spring Replacement** .





**Fig. 32: Identifying Wheel Speed Sensor Electrical Connector**  
**Courtesy of GENERAL MOTORS CORP.**

5. Disconnect the electrical connector from each wheel speed sensor and remove the wire from the rear support.



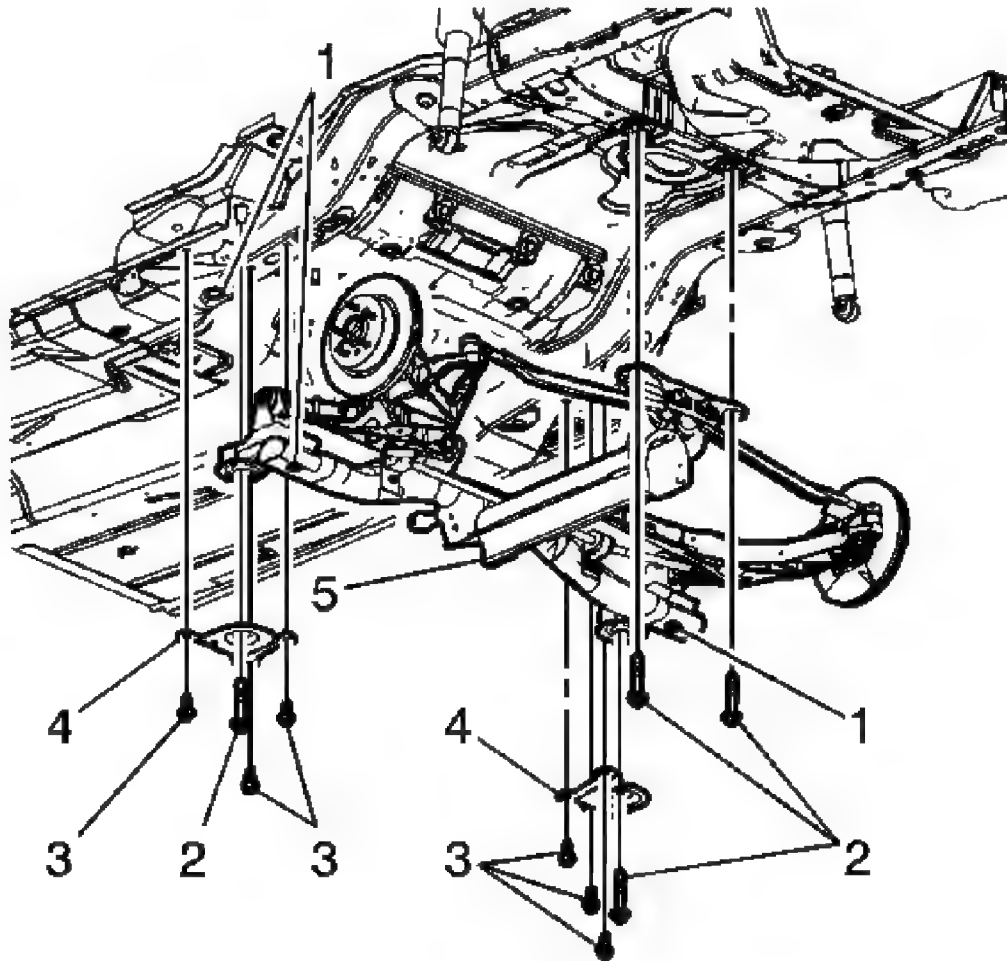
**Fig. 33: Identifying Lower Control Arm Electronic Level Control Link & Ball Stud**

Courtesy of GENERAL MOTORS CORP.

6. Remove the electronic level control link (2) from the ball stud (1) on the lower control arm.
7. Disconnect the park brake cables from both calipers and remove cables from suspension support assembly. Refer to **Parking Brake Rear Cable Replacement - Left Side** and **Parking Brake Rear Cable Replacement - Right Side** .
8. Remove the brake calipers and support calipers from vehicle underbody. Refer to **Rear**

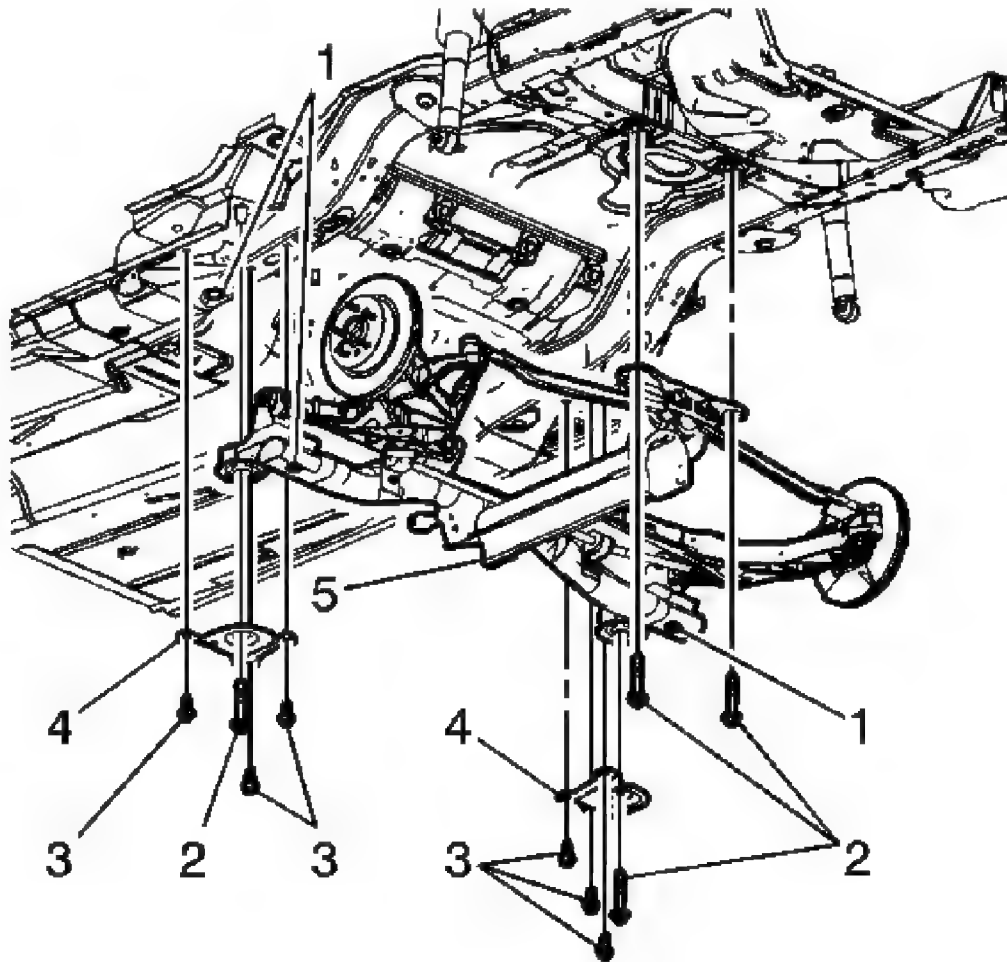
**Brake Caliper Replacement .**

9. Support the rear suspension support assembly with a transmission jack.



**Fig. 34: Identifying Rear Suspension & Support Components**  
**Courtesy of GENERAL MOTORS CORP.**

10. Remove the 6 suspension support reinforcement brace bolts (3).
11. Remove the 4 suspension support assembly bolts (2).
12. Remove the 2 suspension support reinforcement braces (4).
13. Lower the transmission jack and remove the suspension support assembly (5).
14. Transfer all necessary parts from the old support to the new support.



**Fig. 35: Identifying Rear Suspension & Support Components**  
Courtesy of GENERAL MOTORS CORP.

1. Raise the suspension support assembly (5) into position with the transmission jack.
2. Install the 2 suspension support reinforcement braces (4).
3. loosely install the 6 suspension support reinforcement brace bolts (3).
4. Align the suspension support assembly utilizing the alignment gage holes (1).

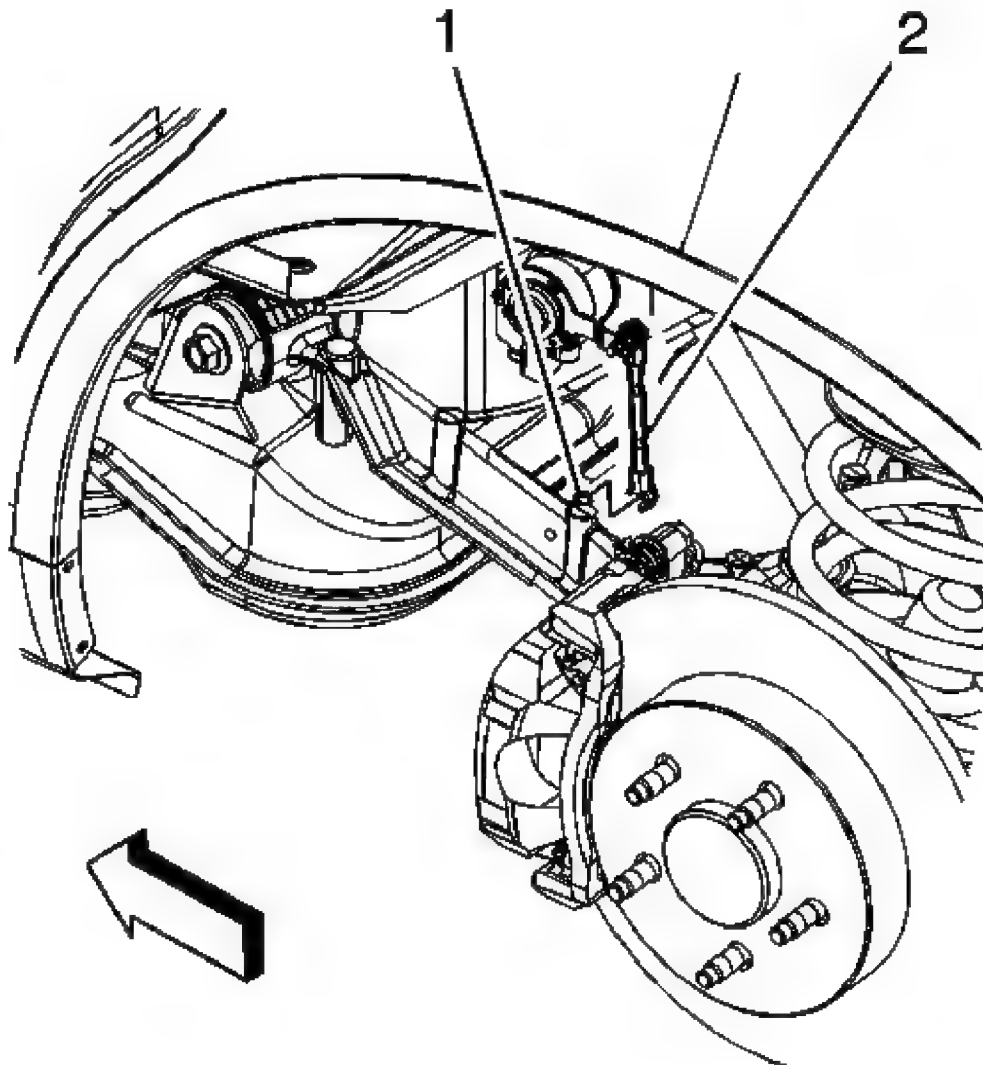
**NOTE:** Refer to Fastener Notice .

5. Install the 4 suspension support assembly bolts (2).

**Tighten:** Tighten the bolts to 191 N.m (141 lb ft).

6. finish securing the 6 suspension support reinforcement brace bolts (3).

**Tighten:** Tighten the bolts to 86 N.m (63 lb ft).



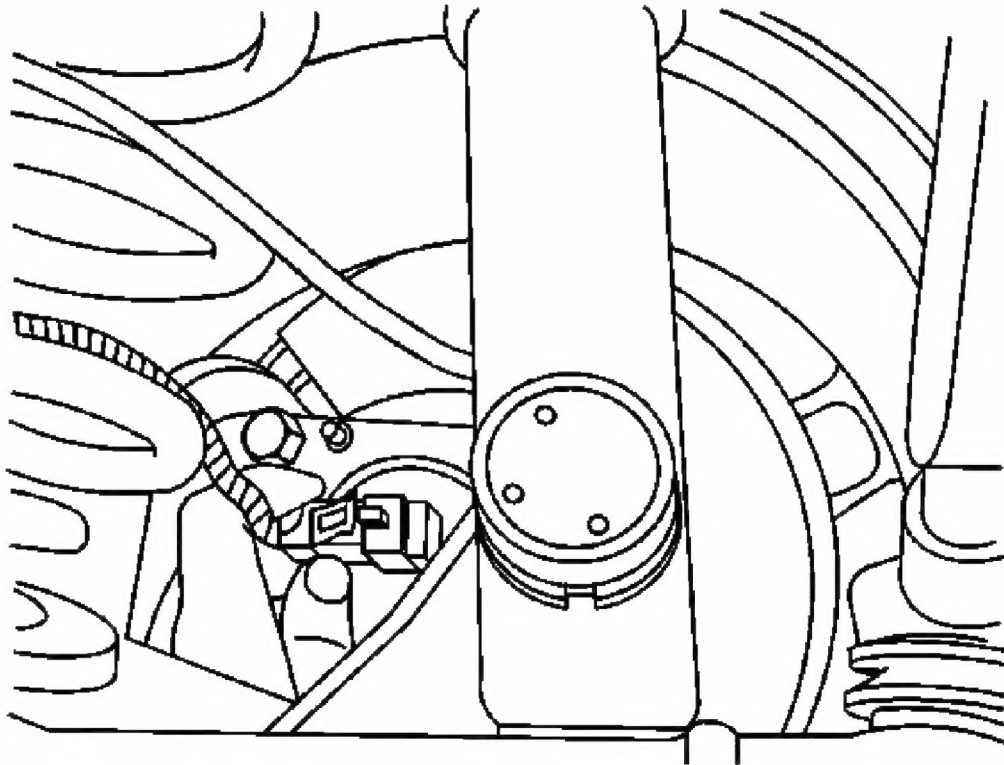
**Fig. 36: Identifying Lower Control Arm Electronic Level Control Link & Ball Stud**

**Courtesy of GENERAL MOTORS CORP.**

7. Install the brake calipers. Refer to **Rear Brake Caliper Replacement** .
8. Install the park brake cables to the suspension support assembly and connect the cables to both calipers. Refer to **Parking Brake Rear Cable Replacement - Left Side** and

**Parking Brake Rear Cable Replacement - Right Side .**

9. Install the electronic level control link (2) to the ball stud (1) on the lower control arm.



**Fig. 37: Identifying Wheel Speed Sensor Electrical Connector**  
**Courtesy of GENERAL MOTORS CORP.**

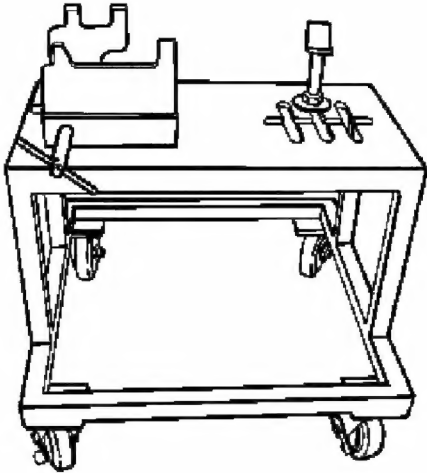
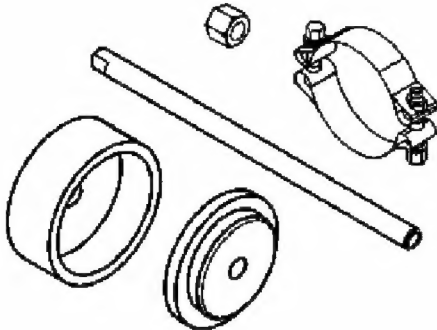
10. Attach the wheel speed sensor wire to the rear support and connect the electrical connector to each wheel speed sensor.
11. Install the coil springs. Refer to **Coil Spring Replacement** .
12. Install the exhaust system. Refer to **Exhaust System Replacement (RPO L26)** or **Exhaust System Replacement (RPO LD8)** .
13. Install the tires and the wheels. Refer to **Tire and Wheel Removal and Installation** .

**SPECIAL TOOLS AND EQUIPMENT****SPECIAL TOOLS****Special Tools**

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## 2006 Buick Lucerne CXS

2006 ACCESSORIES & EQUIPMENT Frame and Underbody - Lucerne

Illustration	Tool Number/Description
	<p data-bbox="853 584 1334 666">J 39580 Universal Engine Support Stand</p>
	<p data-bbox="914 1214 1272 1295">J 45725 Frame Bushing Installer</p>

<b>2006 Buick Lucerne CXS</b>
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2006 ACCESSORIES & EQUIPMENT Frame and Underbody - Lucerne
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<b>2006 Buick Lucerne CXS</b>
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2006 ACCESSORIES & EQUIPMENT Frame and Underbody - Lucerne
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